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USSR Report

TRANSPORTATION

No. 94

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22 September 1982

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AIR

BRIEFS

NEW AIR ROUTE--A new air route has been opened in (?Khakasskaya Autonomous Oblast). It links the resort of Shira with Krasnoyarsk and will be flown by Yak-40 planes year round. [Text] [LD090146 Moscow Domestic Service in Russian 1700 GMT 8 Aug 82]

CSO: 1829/296

MOTOR VEHICLE

ROLE OF TRANSPORTATION IN FOOD PROGRAM

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian
No 6 1982 pp 102-110

[Translation of an article by P. P. Kobaev, director of the division of transportation economics of TsENII [Central Scientific-Research Institute of Economics], Gosplan RSFSR, Moscow]

[Text] The national food program now being developed will present several specific requirements for the development of transportation facilities and the quality and scale of transport operations. In spite of major changes during the last 15-20 years in the structure, technical level and capacity of the transportation system as a whole the system still operates under great strain. This is associated with the lag in development of the transport supply lines relative to the rates of growth of demand for transport services, the fact that the structure of the transport routes is not adequate for transportation of the massive cargo shipment volumes, excessive concentration of shipments along certain routes, delay in development of the local network relative to the trunk network, slow development of the transportation network of the eastern part of the RSFSR and particularly of the northern regions.

In the process of optimization of the agricultural transport system, account is not always taken of the specific peculiarities of the organization of the transport operations in agriculture. These peculiarities include, first of all, the nonuniform traffic volume in the various seasons of the year, the broad range of distances, the complexity of the transport schemes and the multiple nature of the agricultural cargo shipments in the production process. One of the specific features of the agricultural transportation process is the great variety of types of cargo transported and the different degree of their transportability.

In his report to the July 1978 Plenary Session of the CPSU Central Committee: "On Further Development of Agriculture in the USSR," L. I. Brezhnev said: "The rural transportation problem, no matter how difficult, must be fundamentally resolved. Specifically, we must organize the production of heavy cargo and specialized trucks for agricultural use. I would also like to emphasize the important question of road construction. Further increase of agricultural production and improvement of the living standards of the rural population are directly linked with development of the road network--the

main (we could say vital) transportation arteries of the rural economy. But there are still very few good roads. The agricultural losses from lack of roads are excessive."

Technical Progress in Transportation

The development of the rural transportation systems of most countries is taking place in two basic directions: improvement of the transport vehicles and improvement of the technology of the transport processes.

We are seeing a tendency toward the creation of more powerful transport vehicles, including increase of their load capacity, the introduction of less-transport-intensive technology, the organization of centralized transport services and enterprises and the creation of an extensive motor vehicle service network. The following requirements must be satisfied by the modern transport vehicles:

- high speed;
- low en-route servicing costs, primarily thanks to performance of all the servicing operations from the cab;
- the possibility of operation under severe conditions, thanks to the use of low-pressure tires, all-wheel drive, tire pressure regulation from the cab, and other such devices;
- load capacity that is optimal for the agricultural conditions; and
- minimal unloading time.

Along with the trucks intended for primary cargo transportation the rural economy requires a large number of specialized motor vehicles for the delivery of milk, cattle, poultry, two-tier and three-tier livestock transport semitrailers of capacity 18-20 tons and other such vehicles. We need to organize extensive production of crates, pallets, shipping nets and containers. They are required for multiple trans-shipments and for maintaining the quality of the produce. Such cargos include many of the berries, fruits and vegetables, and table and seed potatoes. Unfortunately the use of containers of various dimensions in agriculture is only starting.

As a rule truck shipments in agriculture are advantageous over long distances and on good roads. In the case of shipments over short distances using dirt roads or routes without roads the basic advantage of the truck (high speed) is not utilized. Here it is more effective to use wheeled tractors with trailers. However tractor transport is not used as much as it should be in agriculture because of the shortage of trailers.

A very important direction in improving labor productivity, reducing losses, shortening harvest schedules, and improving the quality of agricultural produce is the steady improvement of the technology of transportation operations in agriculture. Deserving of particular attention in this regard is the development of shipment of cargos using the scheme: field to truck to railroad car. This "conveyer" makes it possible to utilize the trucks and rail cars most productively. It is advisable to develop direct shipments by truck over distances up to 150 km, thanks to which we can eliminate

trans-shipment of the cargos en-route and ensure expeditious door-to-door delivery of cargo in good condition. Organization of agricultural produce shipment with the use of truck-trains and truck-trailer rigs deserves further development. Each open-top truck-trailer unit provides an annual savings of up to six tons of liquid fuel. The direct cost of shipments when using truck-trains and trailers in comparison with individual trucks is lower by 0.5-1.5 kopeck per ton. It is best to organize agricultural produce delivery to the storage facilities and to the processing plants using truck-trains of load capacity from 8 to 10 tons.

Container shipment of cargos, particularly for the shipment of potatoes, root crops, fruits and other produce, should find wider use in agriculture. Experience shows that the container technique for the shipment of potatoes reduces the shipping losses by more than a factor of two. In addition the use of containers makes it possible to mechanize the loading and unloading and trans-shipping operations, eliminate re-loading and improve significantly the productivity of the transport vehicles. In recent years there has been considerable interest abroad in trucks of increased "flotation" and truck-train container carriers. There has been a definite tendency toward the development of refrigerated trucks, and also containers with cooling units or air conditioners.

Among the agricultural bulk cargos the delivery of grain from its production regions to the points of storage and processing occupies a special place. IKTP [Institute of Complex Transportation Problems], Gosplan USSR together with the permanent commission of the USSR Academy of Sciences on scientific problems of transportation development has examined the possibility of constructing container-type pneumatic conveyers in one of the grain growing regions of Kazakhstan. Plans are to construct pipelines of overall length 650 km. Their introduction into operation will make it possible to reduce grain shipping costs by a factor of five. At the same time the requirement for trucks will decrease significantly.

But The Roads....

Roads have a major influence on the effectiveness of utilization of transport vehicles and on the quality and state of preservation of the agricultural produce being shipped, and consequently on resolution of the tasks facing the food supply programs. The need for an integrated approach to these problems is dictated by the special resolution of the CPSU Central Committee and the USSR Council of Ministers: "On measures to improve the construction, repair and maintenance of motor roads in the nation."

GiprodorNII [Scientific-Research Institute of Road Planning] of the RSFSR Ministry of Highways has made studies in the regions which are poorly supplied with road networks and has established that:

- transportation costs amount to 40 percent of the direct cost of agricultural produce; the delivery cost frequently exceeds the profit from the produce sold;
- on the average each serviceable truck is idle for 40 days a year because of impassable roads;

- up to 60 percent of the tractor fleet of the collective and state farms is occupied in the impassable road periods with unproductive operations associated with towing trucks and transporting cargo, including transport over long distances, as a result of which the average loss of each "roadless" farm is 15,000 rubles a year;
- 10-15 percent of the hay crop and 5 percent of the grain crop is destroyed under the wheels of the trucks as they detour the impassable segments of unpaved roads;
- the young crops located along the country roads are stunted as a result of being covered with dust, and their yield in a strip at least 15 meters wide is 30-35 percent below the average;
- the losses of cattle live weight during shipment by truck over poor roads reach 1.5 percent;
- because of reduction of the quality of the produce transported over poor roads (sometimes drawn by tractors) the state and collective farms suffer losses ranging from 0.5 to 2 rubles per 100 kg of milk and from 1 to 3 rubles per 100 kg of vegetables, without counting the significant increase of the shipping costs.

According to estimates of many specialists, the overall crop losses from lack of roads reaches more than 3.5-4.0 billion rubles a year. According to IKTP data, elimination of the road problem in many regions of the nation would reduce the requirement for truck transport by 575,000 to 600,000 trucks and reduce the nationwide shipping costs by about seven billion rubles (A. Mitaishvili, "Development of the USSR transportation system," Voprosy Ekonomiki, No 3, 1980, p 10).

As the agriculture sector becomes saturated with high-load-capacity and high-speed transport vehicles it will be necessary to increase the scope of the operations associated with reconstruction of the existing country roads and the construction of new farm roads. Studies show that the network of country roads must be increased by a factor of 2-3. According to a preliminary estimate, only about 7 percent of the collective farms and about 6 percent of the state farms in the RSFSR have roads with hard pavement, and their percentage in the overall RSFSR road network is somewhat over 8 percent.

In the 10th Five-Year Plan 6.6 billion rubles of capital investment were directed toward development of the road system, which exceeded by two billion rubles the level of the 9th Five-Year Plan. In the current five-year plan there will be constructed in the RSFSR more than 33,000 km of motor roads, including 5,000 km of primary roads.

Realization of the very large and capital-intensive operations associated with the construction, modernization and upkeep of the general-use motor road network is possible only with significant technical progress in road construction methods. We should limit construction of the motor roads of national and republic significance with pavement of interim type and accelerate development of the road network of Siberia and the Far East. Particular attention should also be devoted to shortening the road construction schedules.

Problems of primary importance include the broad development of highway construction machinery building in order to supply the construction projects with automated and highly productive machines and units, the use of machine complexes for the laying of concrete pavement, and also the use of the latest chemical and other materials as pavement foundations.

A significant drawback of the present road construction program is the fact that it does not really concern itself with the network of rural intra-farm roads, on which most of the agricultural transport vehicles operate. Gravel roads, unpaved roads and field roads dominate in the rural areas, and there are very few hard-paved roads. For this reason trucks and truck-trains having single-axle loads of 6 tons and twin-axle loads over 11 tons essentially can not be used in agriculture. High-load-capacity trucks of the MAS or KRAS type usually have axle loads of about 10 tons and are suitable for operation only on hard-paved roads.

The intra-farm roads constructed by the Dorkolkhozstroï [Collective Farm Road Construction] Trusts are seldom repaired or maintained, as a result of which they fail prematurely. Therefore it is advisable to turn the repair and maintenance of the intra-farm roads over to the Minavtofor RSFSR organizations and supply these organizations with the required amount of machinery, motor transport and materials.

Many specialists feel that slow development of the road network is one of the primary obstacles delaying industrialization of agriculture and consequently resolution of the national food program. At the moment the problem is to link with hard-paved roads in the next few years all the regional centers, the farm central facilities, most of the producing areas, and the population centers of the rural regions. Neither modernization of transportation nor the improvement of the quality and state of preservation of the transported produce nor resolution of the major social problems--including development in the rural areas of a modern education system, medical, utility and trade services, linking the living areas with the areas where the rural population works, and so on--are possible without resolution of the road problem.

The progress achieved in developing a well-organized motor road network in the agricultural regions of the RSFSR is clear from the data presented in the Table.

[see Table next page]

Table. Level of Provision of Regional Centers and Collective and State Farm Central Facilities With Well-Organized Access to Hard-Paved Roads, %

Zones

	Year		
RSFSR	1970	1975	1980
regional centers	65	77	85.2
central facilities of CF and SF*	39	59	78
Nonchernozem			
regional centers	78	85	90.5
central facilities of CF and SF	45	63	79
Other European			
regional centers	75	85	94
central facilities of CF and SF	41	60	75
Ural			
regional centers	61	74	88
central facilities of CF and SF	39	52	65.5
Eastern Regions			
regional centers	41	62	69.5
central facilities of CF and SF	28	46	65

Note. Results of calculations of TsENII, Gosplan USSR

* CF = collective farm, SF = state farm

An important stimulus to solution of this problem was the resolution of the CDSP Central Committee and the USSR Council of Ministers: "On measures for further agricultural development of the Nonchernozem zone of the RSFSR." The resolution proposed the construction of more than 25,000 km of paved roads of republic, oblast, and local significance and intra-farm roads. The collective farms are offered credit for the construction of intra-farm roads for a period of 15 years. This resolution is being successfully implemented. In the 10th Five-Year Plan 17,900 km of general-use motor roads were put into operation in the Nonchernozem zone of the RSFSR. One hundred and eighty-four regional centers were linked with the oblast and kray centers and the capitals of the autonomous republics. The central facilities of 3,700 collective and state farms are linked with the regional centers. The efforts on development of the road network will be intensified in the present five-year plan.

Other Problems

Optimization of location of the receiving facilities and processing enterprises: Delivery of agricultural produce to the storage facilities is accomplished at the expense of the collective and state farms. Therefore the storage organizations are not interested in solving the subject problem. The collective and state farms are forced to transport their agricultural

products 100-150 km from the point of their production. This makes the transportation process more expensive and causes additional losses and deterioration of the quality of the produce being shipped.

Supplying the trucking fleets serving the collective and state farms with loading and unloading equipment: This motor transport system assigned to agriculture requires a good technical and material base, specialized vehicles, and qualified personnel. The motor transport organizations should not only be occupied with shipment of agricultural products but should also provide on a contractual basis technical inspection and routine maintenance of the transport vehicles of the collective and state farms.

We must concentrate the efforts of the various departments on organizing centralized intra-regional and inter-regional cargo shipments over the roads connecting the rural regions with the railroad stations, ports and docks, inter-regional centers and warehouses, and with the oblast, kray and republic centers. It is advisable to use a complex system of organization of shipments of the agricultural products by truck in the harvesting period. The experience of Minavtotrans [Ministry of Motor Transportation] RSFSR in unified operative control of the transportation vehicles used in harvesting deserves some praise. Transport-dispatch support of the enterprises, organizations and population of the rural regions must be further developed.

Acceleration of agricultural produce delivery by rail transport, primarily by shortening the idle time of freight cars waiting for loading (and particularly unloading) on the spur tracks of several ministries and departments. The freight idle time associated with loading operations exceeds significantly the established standards: the idle times are nearly twice the standard set by Minmyasomolprom [Ministry of the Meat and Dairy Industry] RSFSR and by 2.5 times the norms set by Minsel'khoz [Ministry of Agriculture] and so on.

The problems examined herein certainly do not cover all the aspects of the transportation system as a whole; however, these are the primary problems and their solution will in large measure predetermine the success of realization of the national food supply program.

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MOTOR VEHICLE

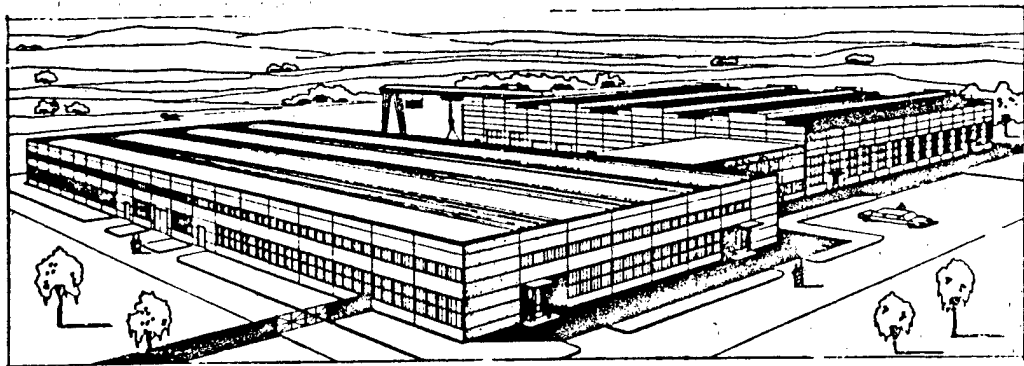
DETAILS ON GAZ REPAIR PLANT GIVEN

Moscow SEL'SKOYE STROITEL'STVO in Russian No 6, Jun 82 p 33 (inside back cover)

[Article: "The Gipropromsel'stroy Institute Has Drawn Up Standard Type Design 175-36-81 T Renovation With the Expansion of Motor Vehicle Repair Plants, Which Were Built in Accordance with Type Design 5-03-234, With an Increase of the Capacity to 5,000 Overhauls a Year"]

[Text] The plant is designed for the major overhaul of motor vehicles like the GAZ on the basis of ready-made assemblies, which are received in accordance with cooperation from assembly repair plants. The repair of engines, gear boxes, front and rear axle assemblies, the steering system, tires, electrical equipment and batteries and the centralized reconditioning of parts are envisaged in accordance with cooperation.

The renovation of the motor vehicle repair plant consists in the replanning of the existing disassembly block, which was built in accordance with type design 5-03-234, and the addition to it through a walkway building of a new assembly block.



The existing building of the disassembly block was designed according to dimensional diagram B4-12-60 with plane dimensions of 48 X 102 m. The administrative and personal facilities (the plane dimensions are 12 X 48 m) are located in the interior of the block on axes 1-3 on two floors.

A precast reinforced concrete frame is used as the main load-carrying structures of the existing part of the disassembly block and the part being renovated. The walls are panel walls.

The assembly block was designed in accordance with dimensional diagram B4-18-72 with plane dimensions of 72X82 m with garret windows. Precast reinforced concrete structural members were used, the walls are light-weight concrete panels.

The walkway building is a two-story building with plane dimensions of 18X24 m, with a height of the first floor of 3.6 m and of the second floor of 3 m. Production premises are located on the first floor, office premises, laboratories, air-ventilation chambers and the premises of public organizations are located on the second floor.

For the purposes of increasing labor productivity and improving the quality of repair the plan provides for the introduction of the following advanced technological processes of repair:

the multiphase washing of the motor vehicles and assemblies with advanced detergents;

the organization of the disassembly, repair and assembly of vehicles and assemblies on flow lines with the use of highly productive equipment, accessories and power tools;

the organization of the test running and diagnostics of motor vehicles on special stands.

Equipment for vibration washing in a medium of liquid detergent with the circulation of the cleansing solution is being used for the first time in the design of the repair enterprise.

Technical and Economic Indicators

Annual production program, thousands of rubles.	4975
including internal production	2850
Estimated cost of construction, thousands of rubles	1756.27
including construction and installation work.	1057.70
Total area, m ² :	
disassembly block with administrative and personal facilities	7776
assembly block.	6680
walkway building.	990
Number of workers	261

Orders for obtaining the technical specifications should be sent to the Gipropromsel'stroy Institute (410740, Saratov, Ulitsa Rabochaya, 24).

Administration of Scientific and Technical Information and Advertising of the USSR State Committee for the Supply of Production Equipment for Agriculture.

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CSO: 1829/260

MOTOR VEHICLE

BRIEFS

DIESEL TRUCK TIRES--Kirov--The Kirov Tire Plant has produced a test batch of tires for heavy trucks with a diesel engine, which are used widely in agriculture. The new item ensures superior roadability over dirt roads, meadows and plowed fields. One tire will replace the two paired tires, with which the GAZ-53 is now equipped. And its life is much longer. Specialists have calculated that 1 million new tires will make it possible to save the national economy more than 20 million rubles. [By V. Ukolov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Jun 82 p 1] 7807

BELAZ COAL TRUCKS--Zhodino, Minskaya Oblast (TASS)--The new dump truck from the family of BelAZ's will speed up the pace of the mining conveyor. Its body holds a load of 180 tons, which this giant can carry at a speed of up to 50 km/hr. Yesterday such a BelAZ left the assembly shop of the Belorussian Motor Vehicle Plant on its first run--test running at the testing ground of the enterprise lies ahead for it. "It is planned," said L. Dobrykh, chief designer of the plant, "to use these trucks at the Kansk-Achinsk and Ekibastuz Fuel and Power Complexes, where they will haul the overburden rock. And after them will come heavy-duty coal trucks, the output of which is being increased by the plant." Brief retraining is sufficient for learning to drive the 180-ton giant: it is no more difficult to drive it than an ordinary truck. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 May 82 p 2] 7807

KREMENCHUG TRUCKS--Kremenchug--The family of Kremenchug trucks is constantly being added to. A new heavy-duty truck has been developed for the hauling of construction and bulk cargoes. Its carrying capacity is 16 tons--one-fourth more than the preceding make of dump truck, its speed is up to 80 km/hr. A trailer truck, which is capable of hauling 26 tons of freight, is intended for the needs of agriculture. Loggers will receive a logging truck for the transportation of 29 m³ of timber, the builders of main gas pipelines will receive a pipe carrier, which is designed for the delivery of 20-m "lengths" to nearly impassable regions. The operation of each of these vehicles will save the national economy thousands of rubles. [By V. Andreyev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 May 82 p 2] 7807

CSO: 1829/260

RAILROAD

PREPARATIONS FOR TRANSPORTING NEW HARVEST

Moscow ZHELEZNODOROZHNIY TRANSPORT in Russian No 6, Jun 82 pp 33-35

[Text] The rail transport workers, like all Soviet people, have accepted with great fervor the historic decisions of the May (1982) CPSU Central Committee Plenum and Comrade L.I. Brezhnev's report. The plenum approved the Food Supply Program for the USSR for the period up to 1990, which had been developed at the initiative of Comrade L.I. Brezhnev, and ratified the decrees of the CPSU Central Committee and the USSR Council of Ministers, presented by the Politbureau of the Central Committee, regarding some specific questions connected with the Food Supply Program.

As Comrade L.I. Brezhnev emphasized in his report at the CPSU Central Committee Plenum, the goal of the planned measures is to reliably provide food to the population of our country in the shortest possible time. This is not only a paramount economic task, but a pressing socialized political task as well. Satisfying the vital needs of the Soviet People was, and continues to be, an important program requirement of our party.

The decree of the CPSU Central Committee Plenum indicates that each republic, kray, oblast', rayon, each branch of the national economy and all urban and rural workers have been called upon to make a maximum contribution towards solving the food supply problem, which is the main task of the party and the states during the 11th and 12th Five-Year Plans. And that applies fully to rail transport, which is a major link in the chain through which the village is supplied with all its needs and agricultural products are delivered to consumers. Specific tasks were assigned to the railroad workers at the CPSU Central Committee Plenum, in the accepted Food Supply Program. At the same time, one must consider that the Food Supply Program should produce its first results during the current year, which makes increased demands on the entire work cycle of the agro-industrial complex.

Everywhere, in kolkhozes and sovkhozes, at enterprises and organizations of procurement, agricultural equipment, rural construction, land reclamation and water resources, food industry, the fruit and vegetable industry and transportation, the work is developing for preparing and carrying out the reaping and procurement of agricultural products of the new harvest. The upcoming harvest, procuring the products of fields and farms and creating a solid supply of fodder for livestock are complex and extremely crucial tasks. All

workers, including rail workers, are directed to a successful resolution of these tasks by the decree of the CPSU Central Committee and the USSR Council of Ministers, "Additional Measures for Assuring the Reaping of the Harvest, Procurement of Agricultural Products in 1982 and the Successful Conduct of Livestock Wintering During the Period 1982-83."

Despite the fact that spring was late this year, particularly in the European part of the country, the farmers did, and are doing, everything to assure a good harvest of cereals and other crops. And there is every reason to suppose that the harvest will be large. Consequently, there will be a very heavy work load on the railroads and our responsibility will increase for the timely and secure delivery of grain, potatoes, vegetables, fruits, cotton, sugar beets and other crops. The railroad workers are answerable before the party and the people for the successful solution of large and complex tasks connected with transporting agricultural cargo from the harvest of this year--the second year of the 11th Five-Year Plan.

The long-range and current problems of providing this transportation and carrying out the corresponding decree of the CPSU Central Committee and the Soviet government were examined at a meeting of the collegium of the Ministry of Railways. The collegium summed up the execution of the freight transport plan for carrying out the spring field work and thoroughly analyzed the progress of preparations for transporting harvesting equipment, new agricultural output, fuel, building materials, fertilizers and fodder for cattle. It was pointed out that the railroad workers had successfully carried out the 4-month plan for transporting motor vehicle and tractor fuel, tractors, agricultural machinery and a number of other cargoes for the village. At the beginning of May, 2.3 million tons of seed grain were delivered to the regions where sowing was taking place; shipment of the grain was carried out in complete accordance with the demands of the enterprises receiving the grain. During the period from September 1981 through April 1982, about 2.6 million tons of coarse fodder were transported.

However, the railroad workers did not fulfill the tasks for shipping mineral fertilizers. The overall volume of transport of the basic types of agricultural output declined somewhat. While the plan for delivery of motor vehicles, tractors and agricultural machinery was over-fulfilled generally, the provisioning of rail cars was not fully supported to the Belinskiy, Syzran', Gomel' and Bobruysk agricultural machine-building plants, the Khar'kov Tractor Plant, the Dremenchug, Minsk and Kama River motor vehicle plants. Necessary measures were not taken on a number of railroads to improve the routine maintenance and use of box cars and refrigerator rolling stock. Tasks for producing grain screens were not fulfilled everywhere; there were frequent instances when their return to grain loading railroads was delayed. There are major shortcomings in the repair of rail cars and grain screens; interchange of defective rail cars is being permitted; the safe-keeping of equipment and agricultural output is not being sufficiently provided for during transport. In a word, there is a great deal that must be done, in a very short time, to eliminate these and other shortcomings in the area of organizing transport of grain for the village and the agricultural output of the new harvest.

As usual, mass transport of this output began with the shipment of the early vegetables, particularly cabbage. According to data from procurement organizations, more than 850,000 tons of early vegetables overall will be shipped on railroads in the second quarter of 1982, which is higher than last year's total by 10-12 percent. The railroad workers were ready in advance to transport the early vegetables however the cabbage ripened 15-20 days late in Azerbaijan, for example. This caused the cabbage to be presented simultaneously for transport to the Transcaucasus and Central Asia and resulted in a compressed time frame for shipment, which complicated transport operations considerably.

Refrigerator cars and box cars were concentrated, in advance, on the railroads which had massive shipments of early vegetables. These railroads were helped with locomotives and machinery. Eight mobile repair shops, equipped with spare parts and materials, were sent to the Azerbaijan, Central Asian and Transcaucasian railroads; twenty-six refuelling trucks and other equipment were assigned to the railroads. The new traffic schedule provides for shuttle runs by additional trains made up of refrigerator cars, as well as rapid trains made up of box cars and special trains for transporting small livestock, milk and dairy products. To make efficient use of its autonomous refrigerator cars, through trains were set up on the Azerbaijan Railroad, consisting of 25 such cars and 1 section of 5 cars with a maintenance crew. All of this promotes the successful transport of early vegetables and fruits.

And there were other measures, directed towards the timely and loss-free delivery of perishable products and poultry, which were planned in the decree of the Ministry of Railways' collegium. The directors of the railroads were instructed to supply cars for loading vegetables, fruits and gourd crops, in complete accord with the plans of the procurement organizations, as well as in accord with orders made during the five days before the start of loading for these crops. On the railroads, 30 industrial disinfection stations and centers were opened, as were 211 watering centers for small livestock, 200 ice-making plants and centers. On the railroads which have massive shipments of gourd crops and potatoes, there will be about 100,000 vegetable centers concentrated by the start of transport operations. There will be about 50,000 livestock cages at points where small livestock is loaded. We must assure that there really is a solicitous and economical use of these commercial devices as well as grain screens. We must strive for the unconditioned fulfillment of control tasks involving sending these devices to loading points; we must speed up the turnover rate and set up strict accounting and proper storage methods.

It is extremely important that we assure the safe-keeping of these products during transport, by being more demanding of freight senders as regards observance of the State Standards for quality of vegetables and fruit, and for packaging. We must also strive so that through-trains and individual cars proceed strictly according to schedule, in accord with prescribed time norms for deliveries. While making use of the large amount of positive experience which we have amassed, we must be concerned in cooperation with freight senders everywhere, about increasing the average car load during transport of vegetables and fruits. For, just last year as compared to 1980,

the average car load during shipment of potatoes and vegetables was increased for the rail network overall by .51 tons. This increase is a large reserve for freeing rolling stock to handle additional transport. Of course, transport of one of the most important crops--sugar beets--from sugar-beet acceptance points near the tracks to sugar mills must be accomplished earlier than usual--prior to 15 December.

Naturally, grain remains the main, chief agricultural freight. The railroad workers always considered themselves, and now consider themselves, to be mobilized in the national struggle for grain. And during the current crucial season of grain procurement, an absolute majority of laborers on the steel main lines are giving an example of good organization, a high degree of intelligence and discipline, a creative approach to everything connected with delivering grain cargoes. We can cite a number of examples of this. Overall, it is characteristic that while they are actively participating in the all-union socialist competition to provide a worthy reception for the 60th anniversary of the formation of the USSR, the railroad workers of many main lines have designated one of their chief obligations to be the timely and loss-free delivery of grain from the new harvest--the harvest in the country's jubilee year.

Now the preparations for the massive transport of grain are being concluded, and a review of our readiness for the transport is underway everywhere. In accord with a decision by the collegium of the Ministry of Railways, special dispatcher groups with round-the-clock shift work are being set up for the period from July to December in the ministry, in the administration of railroads and in the divisions. Operational control to assure the transport of grain and other agricultural products has been assigned to these groups. They are to track the organization and uninterrupted movement of through-trains with grain, timely preparation and provision of cars to load the cargoes of the new harvest, unloading of cars by recipients, execution of control tasks, providing locomotives and crews to grain-loading stations, etc.

In the time remaining before the start of massive transport of grain, we must conclude our inspection of work related to putting into proper order the spur tracks leading to grain-acceptance points and grain elevators. We must also conclude our inspection of freight equipment and weighing facilities at stations. Energetic measures must be taken to eliminate the shortcomings which come to light. We must increase our attention to the use of cars assigned to be loaded with grain. We must also increase our attention to the strict observance of work procedures for grain carriers, not permitting them to be loaded with other kinds of freight. Instances of interchange of defective cars on the Azerbaijan, Alma-Ata, North Caucasus, South Urals, Southeastern, Southern, West Siberian and some other railroads are absolutely intolerable. While showing concern for the timely unloading of cars, the railroad workers must improve their monitoring of the completeness of unloading work, not allowing products to remain due to failure to unload.

Car preparation points must pay special attention to the transport of grain and other agricultural cargo. Unfortunately, there are still major shortcomings at these points; there are wasteful losses of capacity, excessive

idleness of rolling stock and some points are permitting poor-quality preparation of cars. Each month, the railroads are assigned tasks to prepare box cars to carry grain and food cargoes. These tasks must be carried out, unconditionally. A precise schedule for providing and removing readied rolling stock must be developed and instituted for each car preparation point. All the points must receive the proper material and technical resources to carry out the assigned program of freight car maintenance and washing. Of course, there must also be increased attention to plant repair of cars.

During the massive transport of agricultural products, railroad workers are called upon to display the maximum of mobility and efficiency in providing for transport of harvesting machinery, spare parts, fuel and other freight heading for the harvest areas. While doing this, the railroad workers must increase significantly the volume of passenger transport and carry out the intense plan for repair, construction and track maintenance work. Simultaneously, they must do everything necessary to establish winter reserves of fuel, raw materials and other material at industrial enterprises. Of course, while being concerned about this year's harvest, rail transport workers must think about the future and assure the timely delivery of mineral fertilizers, apatite concentrate, building materials and lumber to kolkhozes, sovkhozes, procurement organizations, enterprises which process agricultural products and produce fertilizers, etc.

Under these conditions, special precision and coordination are needed in the cooperation of workers from all rail transport services, and also in their work with neighboring organizations. We must develop and improve the effectiveness of comprehensive socialist competition among neighboring groups of workers. We must more widely disseminate advanced experience, particularly the experience of the railroad workers from the North Caucasus Main Line, as approved last year by the collegium of the Ministry of Railways. These workers are striving for a high level of transport service for the agricultural and procurement enterprises and organizations; they are developing their own farming and animal husbandry base. This journal, in issues 7, 8 and 12 in 1981, told about this experience in great detail.

Agricultural production is developing systematically and at an accelerated pace in all the country's republics and regions. The Ukraine and Kazakhstan, the north Caucasus and Transcaucasus, the Baltic area and the non-black earth zone of the RSFSR are increasing their deliveries of the product of fields and farms to the populace, and valuable raw materials to industry. And so it will be in the future. Recently, the CPSU Central Committee and the USSR Council of Ministers passed a decree, "The Comprehensive Development of Agriculture in the Areas of Siberia, the Far East and in Kurgan Oblast". This decree is yet another indication of the concern by our party and state for the development of the productive forces of a zone which is playing an even larger role in the country's economy. Railroad workers must do a great deal to reinforce the material and technical base of the rural areas in this zone and create large agro-industrial complexes there.

The pace for transporting agricultural products of the new harvest and cargo for rural areas is increasing. The CPSU Central Committee and USSR Council

of Ministers have expressed their confidence that party, soviet, agricultural, trade union and Komsomol organizations, kolkhozes and sovkhozes, industrial and transport organizations will be guided by the decisions of the 26th CPSU Congress and will exert every effort for the successful execution of tasks involving the further development of agriculture. They are confident that these organizations will take every measure to assure that the harvest is brought in without losses, to fulfill and over-fulfill the plans for sale of grain and other agricultural products to the state in 1982, to successfully winter livestock in the 1982-1983 period. The railroad workers have perceived this to be an important order from our party, an enormous expression of confidence and they are determined to execute all the assigned tasks, to raise the level of transport service for agriculture to a higher stage.

The USSR Food Supply Program for the period up to 1990, whose implementation begins this year, is a concrete embodiment of the party's line about an all-round, steady increase in the well-being of the Soviet people. Solving the assigned problems and attaining the prescribed goals are matters for all the people. The rail transport workers view their participation in implementing the historic Food-Supply Program as a matter of honor. Like all workers in our country, the railroad workers are responding to the enormous concern by our Leninist party for an increase in the people's well-being, with a large-scale socialist competition for a successful execution of the 1982 plan and the 11th Five-Year Plan as a whole.

The laborers of the steel main lines fervently support and approve the report of the General Secretary of the CPSU Central Committee, Comrade L.I. Brezhnev, at the May (1982) CPSU Central Committee Plenum. They also support and approve the decisions of the Central Committee Plenum and the entire domestic and foreign policy of the party, directed toward an increase in the people's standard of living and the further flourishing of our motherland.

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RAILROAD

ON MOVEMENT OF COAL BY RAIL

Moscow UGOL' in Russian No 6, Jun 82 pp 37-41

[Article by Engr G. V. Aponasenko of the USSR Ministry of Coal Industry, and Candidates of Technical Sciences E. I. Zlobinskiy and L. Ya. Korobova of the All-Union Scientific Research Institute for Coal: "Information Support for Controlling Industrial Rail Transport"]

[Text] The industrial rail transport of the USSR Minugleprom [Ministry of Coal Industry] is a complicated production and economic system, the development scale of which and the level of technical equipping are characterized by the following basic indicators: the length of the railroad tracks is around 10,000 km; the fleet of rolling stock numbers over 2,000 locomotives and more than 17,000 cars; coal is shipped over 20 railroads where the rail spurs of the production associations involved in coal mining run through 300 adjacent stations; coal is loaded at 700 stationary loading points; the transport operations on the rail spurs of the association are carried out at approximately 1,000 different-purpose stations. The railroad system of the production associations includes modern operating and repair enterprises as well as complicated systems for power supply, automation and communications.

In delivering fuel to the national economic enterprises, industrial transport completes the technological process of mining and processing the coal. In the course of performing this basic function, along with the internal production and economic work, it is closely involved in technological and informational relationships both with the coal mining and coal processing enterprises of the sector as well as with a broad range of external organizations under varying departmental affiliation (Fig. 1).

A lack of coordination in the operations of the coal enterprises, industrial and mainline transport lead to stoppages and to a reduction in productivity in the sphere of basic production as well as to a disrupting of the operating schedule of mainline transport and the schedules of the delivery of coal to the consumers.

The precise and rhythmical operation of industrial transport and the enterprises served by it to a significant degree depend upon the quality of information available to the personnel on all management levels. Information on the fulfillment of the plans for coal loading, deliveries to consumers and sales of coal products are a matter of constant supervision and they are accounted for and analyzed in a broad range of time intervals. The importance of these indicators has predetermined the

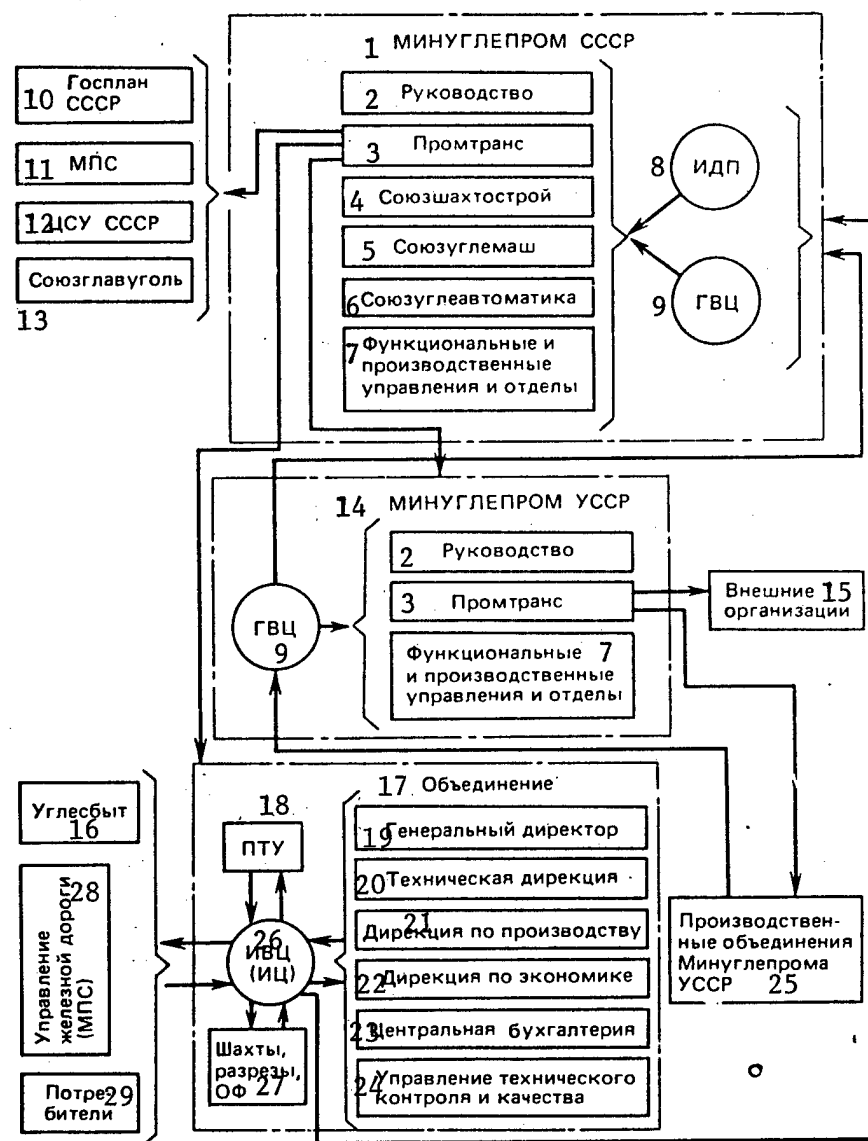


Fig. 1. Information Links in the OASUgol' Subsystem "Coal Loadings and Payments"

Key: 1--USSR Minugleprom; 2--leadership; 3--industrial transport administration; 4--All-Union Association for Mine Construction; 5--All-Union Association for Coal Machinery; 6--All-Union Association for Coal Automation; 7--functional and production administrations and divisions; 8--IDP; 9--GVTs; 10--USSR Gosplan; 11--MPS; 12--USSR Central Statistical Administration; 13--Main Administration for Interrepublic Deliveries of Coal; 14--Ukrainian Minugleprom; 15--internal organizations; 16--Uglesbyt; 17--association; 18--PTU; 19--general director; 20--technical directorate; 21--production directorate; 22--economics directorate; 23--central accounting office; 24--technical control and quality administration; 25--production associations of Ukrainian Minugleprom; 26--IVTs (data center); 27--mines; 28--railroad administration (MPS); 29--consumers.

primacy of solving the corresponding problems in the automated control systems [ASU] of the coal enterprises represented by the subsystem "Loadings and Payments for Coal" in the OASUgol' [Sectorial Automated Control System for Coal].

The tasks of the subsystem encompass a broad range of questions related to ensuring the management functions in the area of rail transport operations, loading and sales of coal. The positing and elaboration of the problems was preceded by extensive and diverse work to systematize the paper work system as well as systematize and classify the transport objects, the flow schemes and processes.

All accounting and report documents drawn up and used at the enterprises, the associations and the Industrial Transport Administration were examined for the purpose of standardizing the forms and minimizing the data comprising them. An analysis run on the documents and indicators used by the functional transport services (freight, traffic, tracks, traction, communications and so forth) on all management levels made it possible to reduce both the number of documents as well as the number of data given in them by excluding duplication and by unifying the indicators. Thus, as a result of unifying the documents, the number of them was reduced from 314 to 276 while the number of indicators dropped from 5,230 to 4,220. As a result of this work, a "Collection of Uniform Forms for Accounting, Reporting and Planning Documents for Industrial Rail Transport of the USSR Minugleprom" was published and this contains the documents and indicators required for use by all the transport services of the sector; this is the basis of document processing in this sphere of activities.

A classification and coding have been made for all transport objects on the sidings of the associations and a "Classifier of Coal and Shale Loading Points" has been worked out. This is coordinated with the corresponding all-Union and sectorial guide documents. The flow sheets of rail transport have been adjusted for all the sector's associations and for each connection, indicating the designation of all stations, posts and loading points, their technical characteristics, equipment used and operations performed. The album compiled using these materials was a technical reference aid for the freight shipping procedures on the associations' sidings. It clarified and systematized the data used in the accounting and control documents. The results of all the preparatory work were turned over to all the production associations and the loading-transport administrations (PTU) which were part of them. This served as the basis for systematizing the information base of the subsystem.

For the production associations, the elaboration and introduction of the subsystem's problems are performed by the associations' IVTs [information computer center] under the organizational and procedural guidance of the VNIIUgol' [All-Union Scientific Research Institute for Coal]. For the Ukrainian Minugleprom and its production associations, the subsystem's problems were worked out basically by the forces of the GVTs [Main Computer Center] of the Ukrainian Minugleprom and the IVTs of the associations.

The range of the problems worked out and realized for the level of the production associations and the PTU contains more than 20 names. As a rule, the problems are of an operations nature with a solution periodicity basically from 24 hours to a month.

The operations of an association's rail transport are accounted for and analyzed in an operational mode and for a rather broad range of indicators. The subsystem tasks include processing planning and actual data for the amounts loaded, the underloading, unloading for the dispatcher enterprises, the dispatching stations and the PTU. Also recorded are the amounts of the route load and data on the movement of the coal at the enterprise storage areas. Also accounted for and analyzed are the information on the receiving and dispatching of railroad cars of the MPS [Ministry of Railroads] in accord with the established schedules, on the utilization of the cars on the association's sidings and the supply of empty cars for the enterprises. The amounts of car turnaround and stoppages are determined and compared with the designated. The input information of the planning and normative nature is received from the corresponding sections of the association and the PTU, while the actual data every day are transmitted to the IVTs by the dispatcher services of the PTU and the connecting stations. The users of the outgoing information are basically the services and personnel of the PTU concerned with freight operations. The association leadership is made aware of a number of data and also in the established procedure is transmitted to the IDP [abbreviation unknown] of the USSR Minugleprom.

The IVTs of the associations directly account for and monitor the State Standard conformity of the quality of the dispatched coals by grade for the production association as a whole and for the enterprises comprising it. In solving the problems, use is made of the quality statements for the dispatched coal as well as the documents establishing the standards for the quality indicators for the coal. The consumers of the outgoing information are the association's Administration for Coal Technical Control and Quality and the PTU. These, along with the information needed for quality control, also receive information for making up the statistical reporting using Form 27-TP.

A large group of problems is involved in the daily payments for the dispatched coal with the sending and consuming enterprises. The basis of payment is the processing of the loading documents (the individual and group rail receipts, the documents for coal accepted by the dressing mill and so forth), statements on the quality of the dispatched coal, the orders of Uglesbyt [Coal Marketing Administration] for the dispatch of coal, the essential papers of the consumers as well as the conditionally permanent information such as the wholesale and payment prices, coal grades and assortments, the ash content standards and so forth. The designated range of problems centralizes the payment operations and ensures the submitting of the outgoing documents to all their users, including: the economic services of the association (the central accounting office, the financial section), the accounting offices of the mines, the PTU, the consumer enterprises and the division of the USSR Gosbank.

For a number of problems in the subsystem, payments are made for transport services and the amounts of penalties are set for violations in transport services. The source of the incoming information is the economic and freight services of the PTU. The results of the payment calculations are presented to the leadership of the PTU, to the traffic services, the accounting office as well as to the appropriate personnel of the railroad stations.

Information on the fulfillment of the plan quotas for the sale of industrial product in physical and monetary units is one of the most important indicators determining the operations of the production association and its enterprises. The corresponding

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accounting and analysis for the association and the production units are carried out daily and from the start of the month using the results of solving the subsystem's problems. The planning indicators and the carryover balances for coal sales are drawn up in the planning department and the accounting office of the association. The initial data for accounting for the actual sales are received from the enterprises. The output information is turned over to the general and technical directors of the association, to the directors for production and economics, to the directors of the enterprises and to the appropriate services of the association and the enterprises.

The above indicated problems in various combinations are solved at the 25 IVTs of the sector's production associations. The complexity of the process involving the organization of the computer centers characteristic for the period of the first stage of the OASUgol', the difficulty in staffing their collectives and the lack of software left an impression on the quality of the designated problems. This was expressed mainly in the local nature of their positings specific for the conditions of the concrete associations.

The effectiveness of the subsystem "Coal Loadings and Payments" is determined by the comprehensive support for the association's functions in the area of loading, delivering and selling the coal. Here, as was pointed out above (see Fig. 1), the area of the subsystem's activities is in the sphere of information interaction between a number of departments and primarily the USSR Minugleprom, the Gossnab and the MPS. In their work the coal mining enterprises and the PTU are closely tied to the coal marketing organizations. Research conducted by the VNIIUgol' and the GVTs of the USSR Gossnab has shown that the coal enterprises and the territorial coal marketing organizations in fact employ a single information base (the indicators employed by them in the sphere of loading, delivering and selling coal coincide by more than 70 percent). The interdepartmental integration of the data based upon their centralized processing within the specific subject area makes it possible to substantially improve the quality of the information support of the users in comparison with the local elaboration of individual problems. The sources of effectiveness lie both in the area of systematizing the information flows, minimizing the input data and organizing the processes of collecting, transmitting and processing the data as well as in the area of the direct use of the technical and economic indicators. Also very essential is the ensuring of the compatibility of the data used by the organizations of different departments and the users of the unified base. This has been confirmed by the work of the IVTs of the Karagandaugol' [Karaganda Coal] Association which introduced and for a number of years jointly with the Kazuglesbyt [Kazakh Coal Marketing] Administration has successfully operated the subsystem "Coal Loadings and Payments" which is part of the association's ASU.

The first stage of the subsystem carried out on the Unified Computer System is based upon the comprehensive use of data concerning the loading, dispatch and sales of coal and received at the IVTs both from the association's enterprises and services as well as from the sections of Uglesbyt. The outgoing information under operational conditions provides all the users with information on the volume of the complete range of the above-indicated problems in the subsystem with a substantial broadening of data for the accounting for and analysis of coal deliveries for the association and the enterprises comprising it. The integrated processing of the information has significantly broadened the area of its use, having provided for the drawing up of machine documents for the payment for dispatched coal and substantially accelerating this process.

The problems of the subsystem "Coal Loadings and Payments" on the level of the USSR Minugleprom are determined by the following basic goals and functions in managing industrial transport: the carrying out of a unified technical policy for the development of rail transport in the coal industry; ensuring the prompt fulfillment of the plans for the loading and transporting of all freight by rail transport and control over the delivery of coal (shale); increasing the efficient operation of the sector's rail transport, improving the use of fixed capital, labor, material and financial resources; providing safety equipment and labor safety on rail transport.

The problems realizing these goals can be divided into two basic groups: problems related to the creation and development of the technical base of rail transport and the problems related to operational questions, including the interaction of the industrial transport bodies with the various enterprises, departments and organizations.

The study and choice of the problems solved on this level are made considering the specific features of industrial rail transport. These consist in the large number and diversity of the subunits comprising this system and the rigidity of the demands made upon the effectiveness of control. In addition consideration is given to the fact that on the level of the USSR Minugleprom the activities of industrial rail transport are closely tied to the activities of a number of general state administrative bodies and other ministries and departments. The latter is very essential since it influences the positing and operation of the subsystem's problems, the form, content and dates for submitting the outgoing documents of which should satisfy the requirements of these organizations. The positing and elaboration of the problems are carried out proceeding from the requirements for the integrated use of the adopted means and methods of their realization and for creating a uniform information base of the subsystem.

The problems solved in the subsystem, the incoming and outgoing information and the consumers of this information are shown in Fig. 2.

All the problems of the subsystem encompass two basic areas: the technical base and the questions of coal loading, delivery and payment.

The solving of the first range of problems makes it possible to calculate the annual demand and balance of locomotives, freight and passenger cars, to determine the sector's requirement for locomotives (diesel, electric, steam and so forth) and cars (box cars, universal freight cars, automatic dumping cars, tank cars and so forth) and to calculate the service life and requirement of the individual associations and the ministry for track, proceeding from the overall length of the railroad tracks, the type of rails and the amount of freight to be hauled over them. Also related to this group are the problems the solution to which makes it possible to monitor the technical state of the rolling stock, to analyze this state, to provide the required replacement parts and amounts of repair services. The periodicity of solving these problems is from a quarter to a year. The initial data are transmitted by mail in documents of the required form.

The designated group of problems provides an opportunity, on the basis of analyzing the received information, for training and developing the technical base of industrial rail transport for the coal industry.

[Key to Fig. 2 on following page: 1--information sources; 2--Ukrainian Minugleprom; 3--production association; 4--plants of All-Union Association for Coal Machinery and All-Union Association for Coal Automation; 5--combines of All-Union Association for Mine Construction; 6--PTU of production associations; 7--MPS; 8--characteristics of input information; 9--amounts of freight shipments of USSR MPS railroads; 10--loading volumes by freight type, car turnaround time, car stoppages; 11--balance calculation of rail coal shipments; 12--plan for coal loadings and shipments for quarter; 13--static load per car; 14--MPS telephone message (limit for coal hauling); 15--data for analyzing operations of rail transport; 16--request of association for required rolling stock; 17--length of tracks for freight turnover; 18--periodicity standards for major overhauls; 19--operating indicators of PTU for report dates; 20--day loading plan; 21--data on inventory rolling stock fleet; 22--data on repairs of rolling stock; 23--GVT, USSR Minugleprom, IDP; 24--problems; 25--calculation of draft annual freight hauling plan; 26--fulfillment of loading plan and calculation of car stoppages; 27--calculation of coal loading and hauling plan and calculation of car standard; 28--analysis of rail transport operations; 29--calculation of required cars; 30--calculation of needed locomotives; 31--calculation of service life and demand for rails; 32--operational accounting, control of fulfillment and analysis of reasons for nonfulfillment of loading plan; 33--report on technical condition of rolling stock; 34--report on fulfillment of plan for rolling stock repairs; 35--characteristics of output information; 36--draft plan for freight hauling; 37--report on coal loadings; 38--information on underloading and unloading of cars; 39--report on car turnaround time and car stoppages; 40--calculation of draft plan for coal loadings and hauling; 41--amount of coal loadings for quarter (distribution of limit for association and railroads); 42--length of tracks; capacity of rails, number of ties, load capacity of cars; 43--freight hauled, loading-unloading work; 44--operating expenditures and costs; 45--available locomotives and cars and information on their repairs; 46--required cars; 47--required locomotives; 48--calculation of need and service life of rails; 49--length of tracks; 50--rails required for repair and operating needs; 51--daily report on fulfillment of loading plan; 52--expected coal loadings and reasons for underloading; 53--calculation of inventory fleet, average daily availability of usable and unusable equipment by types and grades; 54--calculation of amounts of repairs by types of equipment; 55--users of information; 56--Industrial Transport Administration; 57--USSR Minugleprom; 58--All-Union Association for Coal Machinery; 59--All-Union Association for Coal Automation; 60--All-Union Association for Mine Construction; 61--Soyuzstroytek [All-Union Association for the Construction of Technical Operations Offices]; 62--PTU of production association; 63--Gossnab; 64--Gosplan; 65--MPS.]

The solving of problems in the second area makes it possible to plan the loading and transloading of coal on the basis of calculating the car standards (monthly and quarterly) for the associations, the railroads and the USSR Minugleprom, to obtain information on the fulfillment of the loading plan, on underloading, car stoppages and their reasons (due to the fault of the enterprise or railroad) and to plan the hauling of various freight for the railroads and the USSR Minugleprom. In this group of problems great importance is assumed by operational accounting, control and analysis of the reasons for the nonfulfillment of the loading plan. This makes it possible to assess the operations of the production associations and railroads.

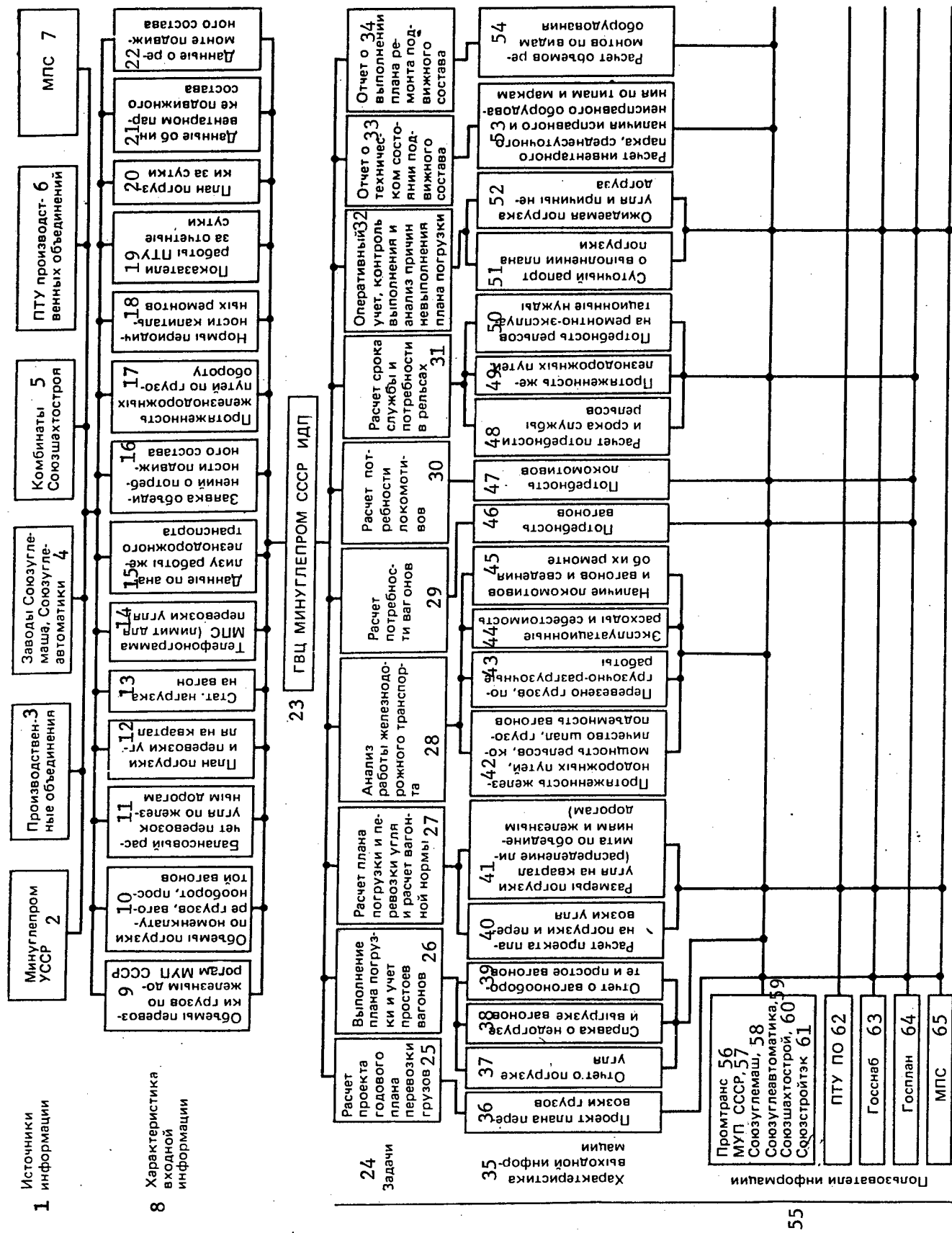


Fig. 2. "Coal Loadings and Payment" Subsystem on Level of USSR Minugleprom

Daily operational control over the course of coal (shale) loading using the teletype communications channels provides an opportunity for the management bodies to actively intervene into the production processes, to make the necessary corrections and to take decisions on the basis of a clear view of the actual state of affairs. The operational information on this question is used by the USSR Minugleprom, the MPS, the USSR Gosstab, the USSR Gosplan and the other leading bodies.

The periodicity for solving the problems in this group is from 24 hours to a year. However, it is essential to point out that precisely the operational problems are very important in this group and their proportional amount is rather high. The information obtained monthly and quarterly on unloading, underloading, stoppages and so forth, in being accumulated and generalized for a more extended period, makes it possible to improve the organization of management, the existing ties and interaction as well as management efficiency.

The work done up to now has made it possible to improve the supply of information to the management personnel, to increase the reliability and immediacy of the provided information and to substantially reduce the amount of manual operations.

The further development of the subsystem presupposes both a broadening of the existing groups of problems, the formation of new ones as well as a qualitative improvement in its informational base.

On the level of the USSR Minugleprom, broadening the range of problems relating to the management functions envisages the incorporation in the subsystem of previously uncovered areas of industrial transport operations and the further organizing of the information reference system on the basis of data used for solving the problems. As the basic source of information we envisage using the "Technical Specifications of the Railroad System" kept at each PTU of the sector and submitted annually to the Industrial Transport Administration of the USSR Minugleprom. The specifications give detailed data and descriptions for the full range of the track, locomotive and car system of the PTU, repair facilities, buildings and structures, the structure of the services, staffs, technical-economic indicators and so forth. The annual replenishing of data for each item makes it possible to disclose the changes over time in the technical state of the PTU and the indicators for their activities. The use of the specifications as the basis for information support of the management bodies on the ministerial level requires a fundamental upgrading of its content, structure and form; these should satisfy modern requirements.

An analysis of the state of work for the subsystem "Coal Loadings and Payments" for the association level makes it possible to conclude that the most effective way for its further development consists in the integrated use of the information base for coal loadings, delivery and sales. Here the broadening of the base and the increase in the number of problems should be carried out in the direction of a broader coverage of management functions, primarily in the area of coal loading as the basic production operation in the subsystem's sphere.

The basic area of work in developing the subsystem on the enterprise level consists in coordinating the information aspects of management with the automating of the production processes in using both the universal and control computers. The problems arising here (among which one must mention first of all the lack of the required

technical pick-ups, communications channels, the shortage of computer software, particularly for communicating with distant terminals) require significant and specific efforts by the developer organizations in various areas,

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OCEAN AND RIVER

RIVER TRANSPORT OPERATIONS DISCUSSED

Kiev PRAVDA UKRAINY in Russian 8 Jul 82 p 1

[Article: "Water Transport"]

[Excerpts] The USSR occupies first place in the world by the length of internal navigable waterways. Not to use this gift of nature in the economic plan means not to have a thrifty attitude toward our capabilities. And they are truly colossal. Think about these figures: the cargo traffic volume of river transport alone should increase by 19.2 percent during the five-year plan compared to 1980, while the volume of shipments should increase by 13.8 percent. Delivery of cargo in mixed rail-water traffic will increase approximately 1.5-fold. Moreover, a considerable part of the cargo will be transferred from rail to river transport.

The river transport of the Ukraine is faced with important tasks. They are generally being solved successfully. The plan and socialist pledges of the first year of the 11th Five-Year Plan were fulfilled in all the basic indicators: by 101.3 percent in the volume of cargo shipments, by 101.7 percent for cargo traffic volume and by 113.3 and 113.7 percent, respectively, in the volume of passenger shipments and passenger traffic volume. Let us say that shipments of iron ore last year increased by more than 37 percent, shipments of metal increased by the same figure and grain shipments by almost 57 percent. These results give confidence that the river workers of the republic have good potential capabilities for increasing the tempos. Even more so since they are faced with intensified tasks during the second year of the 11th Five-Year Plan. They should transport more than 52 million tons of cargo and should guarantee more than 11 billion ton-kilometers of freight traffic volume.

The main thing here is to utilize all available reserves. And they are many. Here is just one. Parallel to the navigable rivers in our republic, the railroad workers continue to haul many petroleum products, metal, grain, timber, coal, ore and mineral fertilizers, that is, everything that can be delivered more economically by water. The Ukrainian river workers have also increased delivery of cargo, but not so much in order to relieve to the maximum the heavy burden on the shoulders of the railroad workers. The river and railroad workers now have many opportunities to improve their work. Last year alone, the port workers had a shortfall of approximately 14,000 rail cars. This again confirms the need for wide introduction of the work experience of the Leningrad transport workers, which will contribute to more efficient use of rolling stock.

The idle times of the fleet on our rivers are also high. Thus, approximately 23 percent of transport ships were idle above the established norms last year in the ports. The losses comprise more than 10 million ton-days. Let us say directly that these are enormous losses. And they were committed mainly due to lack of organization and lack of discipline. Especially great deficiencies occurred in the work of the Kherson and Cherkassk ports.

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OCEAN AND RIVER

ASTRAKHAN' PORT OPERATIONS REPORTED

Moscow VODNYI TRANSPORT in Russian 6 Jul 82 p 2

[Article by S. Minin, chief technician of Astrakhan River Port: "A Huge Percentage"]

[Text] The beginning of the Kaliningrad workers, who announced a decisive attack on manual labor, fully coincides with the plans of the Astrakhan' Port workers who warmly supported it. And this is no accident. Astrakhan' Port is the final terminal on the mighty Russian river. The pressing problem of shore are of course more acute and timely here than anywhere else on the Volga River.

Whether one wants to place blame or not, one must count ton-kilometers. And river ships of the "Bol'shaya Volga" and "Shestaya pytiletk" class frequently call on us at Astrakhan' passing by other ports. Dry cargo carriers, as is known, of obsolete design with semi-open holds are extremely "hard nuts" to clean after such cargo as gravel, sand-gravel mixture and crushed stone that has traditionally arrived in the lower reaches of the Volga River. And although a program for modernization of these motor ships has long been adopted in the Volga Associated Shipping Line, it is being implemented slowly, judging by everything. Because the open ship setup in the holds and the enormous open underdeck spaces under the superstructures are still common. But even on modernized vessels, where these blind alleys do not exist, only a single cleaning bucket can primarily be used in the best case. The cleaning machine based on the small MTZ-80 Soviet tractor is unable to work in the close semi-open holds regardless of one's desire.

Maritime dry-cargo carriers also call at our port. The laboriousness of cleaning their holds is such that there are hardly any river workers that envy us.

Moreover, the maritime motor ships arrive for direct transloading of Baskunchak salt. And where else but at our port is the river tonnage formed up at the final terminal for delivery to Akhtubinsk Port--a port of the famous salt lake Baskunchak. Consequently, the ships must be carefully cleaned with brushes. The exhausting manual labor in this operation was considered for many years to be a directly unsolvable problem.

And even so a way out can be found. Our specialists reached this conclusion after experimental operation of "Clark" machines--general-purpose, small imported machines. Our port received four machines of the well-known Case Company last year among the first in the sector. The compact machine freely moves in the cargo spaces of ships of the semi-open class, is simple to control, is capable of turning on the spot and is capable of removing cargo residues with its bucket from corners previously accessible only to a shovel.

We feel that the Clark machines can be improved significantly with all their universality. It is first requested that they be equipped with suspended cargo grabs that would permit the cargo residue to be taken from the space between spaces, especially the bow hold of maritime vessels, when cleaning open framing. They cannot be re-equipped by piecework. But this modernization would be within the capabilities of sector institutes and experimental plants.

The compact machines of the Case Company are used at our port mainly in the central cargo region. Incidentally, part of the cargo undergoing primary handling in the maritime cargo region is also cleaned here. This specialization in cleaning operations, despite its advantages, is a forced measure. Because the lion's share of all cargo transshipment at Astrakhan' Port falls to the maritime cargo region.

Moreover, this is an unusual region not only by name for the Volga port. The Volga delta--a unique water region--is within its boundaries. Fifteen floating cranes and a type of mobile floating docks operate near the unequipped shore.

It is easy to imagine how complex it is to organize cleaning operations under these conditions. The fleet of cleaning machines based on wheeled and treaded tractors available to us, many of which are more than 10 years old and part of them have failed due to the absence of spare parts, no longer suits us. And the chronic sector disease--a shortage of cleaning buckets--is also felt. In short, one can say that it follows from the clearly exaggerated period of their planned operation, calculated for some reason at 12-13 years. In our port, where the volumes of annual cleaning of ships alone with holds of the semi-open type comprise approximately 500,000 tons, a cleaning bucket lasts 3-4 years. After that, one does not so much work with it as repair it.

One is frequently forced to get along with ordinary buckets on floating cranes during cleaning. Thus it happens that a shovel here is still unreplaceable. Being equipped with it, the port workers throw tons of cargo left in the hold corners into the bucket. And the situation would change if we were able to allocate the "Clark machines" to the floating cranes.

Further introduction of complex mechanization and the absence of modern mechanized docks at our cargo consignees also delay matters. This is an old problem but it is now impossible to put it off "for later" with the increasing needs to support the Astrakhan' Gas Condensate Complex--an All-Union shock construction project--with all needed cargo. Approximately 3.5 million tons of mineral and construction cargo must now be delivered to the unequipped shore. These are extremely significant losses since part of the cargo falls into the water and is washed away and it happens that it simply sinks into the ground due to the weak soil.

Problems of mechanization can hardly be solved in an isolated manner without a complex approach that takes into account the contradictions and bottlenecks that sometimes occur in production activity. Someone would have reason to complain: a transloading apatite complex equipped in the latest word in technology, and a highly mechanized and automated dock where an operator controls the entire transloading process from a console, has now been constructed and has begun to operate at Astrakhan'. However, the transport scheme planned by the project is not yet being maintained and the railroad workers are delivering ordinary boxcars for transloading instead of special apatite carriers and manual labor has appeared unexpectedly. Because each rail car must be prepared for apatite concentrate, it must be lined manually on the inside with paper and the door must be sealed with a panel specially cut from thin planks. This is excess labor plus unsubstantiated consumption of materials.

The port workers will also be excited in the future by the RKP-500 rotary conveyor transloader that has no equal and that has been installed at the apatite dock. It is presently inoperative. Design deficiencies were detected during experimental operation and matters have remained at the stage of finishing this original machine full of promise. Moreover, financing has not yet been open. And the collective of LIVT [Leningrad Institute of Water Transportation] has begun to look listlessly at its child.

I would also like to intercede for the promising, we feel, container sling. Its advantages are obvious. The usual shortage of skids no longer limits us. The ships are loaded more compactly. And the damage to bags of sugar, flour and groats has essentially been eliminated.

Imported packaged-piece goods recently arrived at the port in container slings. And unloading of the ships was rapid, whereas more than a week would have been expended in handling it if it had been delivered in bulk.

But the container sling has not received citizenship in transit shipments on the river. And this is still an unutilized reserve for significant reduction of manual labor. The task obviously is to wage a campaign for it over the entire front, persistently and without ignoring any available capability in this. They are trying to maintain this principle in our port. And the results were not long in coming: during the past few years a rapid increase in the level of complex mechanization of loading and unloading operations has been provided, which comprised 97.2 percent in the results of the past year.

However, there is no reason to conceal a fact that the fraction of manual labor is still rather high. And although it is expressed with a still insignificant percentage, the characteristic feature of today is that further along, the more difficult it will be to encompass labor processes still performed manually with mechanization. Efforts and funds must be concentrated, so to speak, in the huge percentage. As never before, it is important to implement a clear and unified complex technical policy in our sector. There is no other way out.

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OCEAN AND RIVER

SLOW CARGO DELIVERIES TO WESTERN SIBERIAN OIL AND GAS INDUSTRY CRITICIZED

Moscow VODNYY TRANSPORT in Russian 13 Jul 82 p 2

[Article by G. Vstavskiy: "Finish Early"]

[Text] The USSR Committee of People's Control issued the main evaluation of the work of the Irtysh Shipping Line in August of last year on hauling cargo to enterprises and construction projects of the oil and gas industry of Western Siberian. The People's Controllers uncovered instances of registration and coverups in reports on shipments, especially of sand and gravel mixture. Large unutilized reserves in the operation of the fleet and also crude violations of state discipline, of the charter of water transport and shipping rules were revealed.

The KNK SSSR [USSR Committee of People's Control] severely punished the chief of the Irtysh Shipping Line N. Zhivotkevich for omissions committed in organization of cargo shipments to the oil- and gas-producing regions of Western Siberia. Other responsible workers of the shipping line were also punished later at the board of MRF RSFSR [RSFSR Ministry of the River Fleet] for the serious violations permitted in operational activity.

It is natural that practical actions to correct the errors and to strengthen discipline and order followed after such serious criticism. Specific measures were compiled for each department and service of the shipping line and new instructions were issued on accounting for cargo shipments delivered to the oil and gas regions and numerous orders and instructions were written.

The Party Committee of River Workers, the primary party organization of the administration of the shipping line and the people's controllers of the basin took under strong control execution of the decree of the USSR KNK. The scouts of the Irtysh Shipping Line turned special attention to facts of deceiving the government in reporting on cargo shipped and issued a strict reprimand to those who put ships into operation out of time and repaired them with low quality. And there are many examples like this. We shall cite only some of them.

The deputy chairman of the NK [People's Control] group of Belyy Yar pier of Khanty-Mansiysk Port N. Berdnikov reported to the head group of the shipping line on additions in the report on sand shipments. Specifically, 100,000 tons

of sand which were not shipped were included in the accounts of the chief of Belyy Yar dock. A careful check was made from this signal and the facts were confirmed. Moreover, it was determined during the check that they were involved in additions at Khanty-Mansiysk Port during the second and third quarters of last year: besides nonexistent shipments of mineral and construction materials, the report included shipments made by the fleet of outside organizations. An order was issued to the chief of the shipping line from the results of this check and disciplinary measures were imposed on the managers. Moreover, the chief of port A. Dremov was deprived of all types of bonuses for three months.

The people's controllers determined serious violations at the Omsk Ship Repair and Shipbuilding Yard during mass turnover of the fleet for operation, where the director is I. Yanovskiy. For example, due to the fact that the plant repaired the motor ship "Omskiy-105" with poor quality, the ship was idled from 26 April through 14 May. The shafting line had to be repaired a second time. Maintenance of the ship for 18 days of idle time comprised almost 10,000 rubles and moreover, a carrying capacity of 3.1 million ton-kilometers was lost.

Upon a second check of the motor ship "50 let profsoyuzov," controllers N. Talako and A. Yefimov also revealed serious deficiencies. Because of crude violation of the requirements of safety rules on the part of ship's engineer A. Boldyrev, two auxiliary engines failed. The ship had to be sent for a second repair from 8 through 12 May. But even after this the motor ship was idle for two days due to the fact that it was not completely staffed: there was no cook on board. As a result the additional expenditures for maintenance of the ship comprised 3,384 rubles, while the loss of carrying capacity reached 3.6 million ton-kilometers. An order was also issued to the chief of the shipping line from the results of the given check. The guilty parties were reprimanded and were fined. Incidentally, the people's controllers were signalled from this same enterprise on prolonged idle times of the OTA-959, OTA-975 tugboats and other vessels after being turned over for operation.

Crude violations of the schedule for turnover of the fleet for operation were revealed by scouts under the supervision of N. Russkikh at the Omsk Ship Repair Shops of the Irtysh Basin Route Administration. Thus, the suction dredge "Irtyshskiy-115" was turned over only on 5 May instead of 28 April and the "Irtyshskiy-2030" began to work on 7 May rather than 23 April. The results of checks were brought to the management by the basin route administration and strict measures were also taken against them.

It should be noted to do justice that this year the fleet of the Irtysh Shipping Line entered the navigation season in a more organized manner; the repair workers also worked better than in years past. As a result--the Irtysh river workers overfulfilled the crucial task of April and May, including that in shipping cargo to the oil and gas regions of Tyumenskaya Oblast. The labor of both the people's controllers of the shipping line and of the basin route administration is probably included in this success.

True, the activity of the patrols has decreased sharply for some reason now during the height of the navigation season. An incomprehensible calm has begun in the head group of people's control as well, headed by B. Yakovlev. I became acquainted with the future plan of the people's control group of the shipping line for the second and third quarters and this is what was revealed. During the navigation season, it is planned to conduct raids on the readiness of enterprises and of the housing fund for winter, on preservation of socialist property, saving of energy, material and labor resources and to hear the account of the work of controllers at the Omsk River school and on prevention of accident risk in the fleet.

It goes without saying that these are important questions and they obviously should be included in the future plans. But obviously, after the check conducted by the USSR KNK, the problems and questions related to operation of the fleet for complete and timely delivery of cargo to the oil and gas workers of Western Siberia should be in the forefront of local patrols. And there are still many deficiencies and gaps here. For example, the river workers were unable to cope with the June task on hauling cargo to enterprises and construction projects of the Western Siberian Oil and Gas Complex: they failed to deliver 270,000 tons of cargo to this region. As during the past navigation season, above norm idle times at the client's docks at Nadym are high.

Moreover, the chief of Tobol'sk Port V. Kravtsov, when the results for May were totalled in a basin-wide radio broadcast, said with indignation that the ships engaged in hauling gravel from Surgut as before, transport from 200 to 300 tons of water to Tobol'sk. And he criticized his colleagues from Surgut not for the fact that they are utilizing the fleet unproductively, but for the additional difficulties in unloading gravel containing water.

Unfortunately, this alarming fact passed by the patrols of Omsk, Tobol'sk and Surgut as did the fact that five 2,000-ton pressure tugs of the Irtysh Shipping Line had not been put into operation by 1 June: three ships stood idle at the Tobol'sk REB [wage rate and economics office], one motor ship was idle at the Omsk SSRZ [shipyard] and a fifth--the OT-2030--had been taken out of operation during its first few voyages for a long time due to crude violation of operating rules. Finally, it would obviously not be out of order for the people's controllers to become interested in why many ships of the transport fleet are standing idle in navigational and emergency repair.

This year as before, the plan for shipping cargo in direct mixed rail-water traffic is not being fulfilled. For example, Omsk Port did not receive 83,000 tons of freight from the railroad in May and Tobol'sk Port did not receive 30,000 tons. This pattern was also observed in previous months. What is the matter? Who is guilty of interrupting freight deliveries? They Irtysh patrols are now standing aside from this complex problem. In like fashion, the managers are satisfied with what the railroad workers are delivering to them annually. But after all, the state plan, including that for transshipment of cargo, is the law. And no one is allowed to disrupt it.

The correctness of formulating loading and unloading reports and other transport documents should be monitored more rigidly in all ports and at all docks this

navigation season according to the order of the chief of the Irtysh Shipping Line. The shipping line has obligated all managers of ports and docks to conduct raids 2-3 times every 10-day period when loading ships and to check the conformity of the actual cargo with that indicated in the transport documents. There are also instructions and how they are being fulfilled is still difficult to judge. One thing is known--that these reports had come to the shipping company only from Omsk Port by the middle of June.

Almost a year has passed since the last check of the USSR KNK. And it should be noted that the managers of the Irtysh Shipping Line, party and trade-union organizations together with local patrols have adopted a complex of measures to correct the situation. The fulfillment of the state plan is being more strictly checked and problems related to reducing the idle times of ships in repair and for handling are not being disregarded, and efforts are being undertaken to correct other deficiencies. However, it is time to finish. It is now important to consolidate their decisions, measures and orders to really rigid and universal control so as to completely eliminate violations of state discipline, the charter of water transport and shipping rules. This incidentally will also contribute to successful implementation of the high pledges adopted by the collectives of the Irtysh enterprises in honor of the 60th anniversary of formation of the USSR.

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OCEAN AND RIVER

HARVEST TO BE CONVEYED QUICKLY, WITHOUT DELAY

Moscow RECHNOY TRANSPORT in Russian No 7, Jul 82 pp 2-4

[Editorial]

[Text] The patriotic strivings of the agricultural workers to grow and to gather in honor of the sixtieth anniversary of the formation of the USSR an excellent harvest have received ardent support among the workers of river transport. The prompt and efficient conveying of agricultural Produce and cargoes for agriculture is the responsible duty for all rivermen.

The river transport in the RSFSR, and primarily that from points along the rivers that do not have any other means of transportation, annually carries more than 5 million tons of grain, vegetables, potatoes, melon crops, and other agricultural produce. From year to year there has been an increase in the shipments of cargoes for agriculture. During the 1981 navigation season, river transport shipped 32.4 million tons of chemical and mineral fertilizers, building materials and timber, petroleum products, combined fodders, agricultural equipment, and other cargoes; that amount is 1.5 percent more than in 1980.

A special place is occupied by shipments of grain, the share of which in the overall volume of agricultural output in 1981 was 88.4 percent. Those shipments are made in practically all the river basins, but the largest volume of grain is shipped by the rivermen of the Volga United, Volga-Don, Irtysh, Bel'skiy, North-West, and West-Siberian steamship agencies. The grain transporting convey belt requires special precision and time-responsiveness in all its links. The collectives at the steamship agencies, jointly with the oblast grain products administrations, annually carry out a large amount of preparatory work that is aimed at improving the transportation process.

During the current navigation season, the river transport of RSFSR has been given large tasks in improving the providing of services to agriculture and in guaranteeing the prompt delivery of cargoes from the new harvest. As compared with 1981, the volume of grain shipments is supposed to increase by 21.5 percent, and chemical and mineral fertilizers, by one percent.

The decision of the May 1982 Plenum of the CPSU Central Committee, which approved the Food Program for the Period Until 1990, lays a special responsibility upon the workers in the river fleet for improving the transport services provided to agriculture.

In the overall volume of shipments of agricultural produce, a considerable place is occupied by fruits and vegetables and melon crops. The bulk of these shipments are made from river points in Astrakhanskaya and Volgogradskaya Oblasts. In conformity with the preliminary requisitions from shippers to the central and northwestern parts of the country and to the Urals area, in 1982 it will be necessary to ship 210,000 tons of watermelons and tomatoes, which is 6.5 percent more than in 1981.

Despite the considerable delay in the navigation season and complicated hydrological conditions in the operation of the fleet on the lateral rivers, the collectives at the steamship agencies, striving to make their contribution to the carrying out of the Food Program that has been set down by the party, have broadly extended the socialist competition for the preterm and efficient delivery of all cargoes for agriculture, and primarily fertilizers and seed grain, by the spring sowing. Using the high-water period, the rivermen, first of all, guaranteed the shipment of seed grain, mineral fertilizers, petroleum products, and building materials. As a result of the intensive labor performed by the crews on the transport ships and the shore workers, all the seed grain that was brought to river transport for shipping was completely delivered. Special attention was devoted to carrying the cargoes to the remote parts of the country along the lateral rivers: the Unzha, Vetluga, Verkhnyaya Kama, Yug, Vychegda, Konda, Tobol, etc.

The collectives at the Volga United, Kama, Sukhona, Northern, Irtysh, and Yenisey Steamship Agencies and the Volgotanker Steamship Agency, despite the complicated conditions for the opening of the navigation season, the low water levels and the short periods of time when they were present, provided in practically the complete volume the shipment of cargoes for the needs of agriculture to the areas along the rivers. In April-May alone, river transport shipped more than 7 million tons of cargoes, of which more than 1.1 million was grain and 700,000 tons were chemical and mineral fertilizers. Ships of the Volgotanker Steamship Agency during that period shipped more than 800,000 tons of petroleum products, including more than 27 along the lateral rivers.

Simultaneously with the work of guaranteeing the shipment of cargoes to the points on the lateral and rapidly shallowing rivers on the basic river lines, grain was shipped from the southern areas to the central and northern ones with the purpose of freeing the elevators and grain-acceptance points for the acceptance of the new harvest; and imported grain was shipped from the seaports on the Baltic and the Black Seas. The basic role in supporting these shipments was played by the collectives in the Volga-Don, Volga United, North-West, and Bel'skiy Steamship Agencies. As a result of the well-coordinated work, more than 700,000 tons of grain were shipped to the central and northwestern parts of the country in April-May.

However, the most intense period for river transport begins in July, when almost everywhere, especially in the steamship agencies of the central basin, there begins the massive process of bringing the agricultural produce from the new harvest to the shipping points. During that navigation season the situation becomes more complicated, since the volume of shipment of imported grain from the seaports does not decrease. It is specifically during this period that

the precise and time-responsive operation of all the links on the conveyor belt, from the field to the customer, is required.

During the period of preparation for the mass shipment of agricultural produce from the new harvest, a very important task for the workers in river transport is the development and implementation of an entire series of organizational and technical measures.

A very important condition for the successful shipment of these cargoes is the prompt and efficient preparation of the fleet. In order to ship grain and other cargoes made from grain during the 1982 navigation season, in all the river basins during the period of winter ship repair, more than 200 ships with an overall cargo-carrying capacity of more than 1.2 million tons were prepared; of which approximately 500 modern cargo diesel ships, including also ships with cargo-carrying capacity of 5000 tons each. In order to assure the shipment of tomatoes and watermelons from Astrakhanskaya and Volgogradskaya Oblasts, 140 cargo diesel ships with a cargo-carrying capacity of 600-700 tons each were assigned. In addition, 15 catamaran-type diesel ships, as well as 10 diesel ships of the Okskiy type, were assigned to the high-speed Astrakhan'-Moscow line for the shipment of watermelons. During the period of mass delivery of fruit and vegetable produce for shipment, it is also planned to use cargo ships with a cargo-carrying capacity of 2000 tons each and awning-type nonself-propelled barges with a cargo-carrying capacity of 950 tons each.

The experience of the previous navigation seasons has shown that, in order to shorten the dockings of the ships, a factor of great importance is the organizing of specialized brigades to execute the minor repair at any time of the day or night. These brigades should be created at all shipyards and production sectors on shore, as well as in the major ports that are situated close to the shipping points. In addition, during the period of mass delivery of grain for shipment, it is necessary, in the steamship agencies that have grain tonnage on their balance sheet, to create commission to inspect it for suitability for that work. This requirement also pertains completely to the small-tonnage fleet, which is intended for transporting fruits and vegetables from Astrakanskaya Oblast. Incidents of the inefficient preparation of the ships for shipment of grain and fruits and vegetables during the past navigation season were observed in the Volga, Kama, North-West, and Volgo-Don Steamship Agencies. As a result, in a number of instances the planned shipment of agricultural produce was disrupted and that gave rise to justified claims on the part of the shippers.

When preparing for the shipment of grain, the steamship agencies and ports, jointly with the oblast grain products administrations, checked the readiness of the elevators and grain-acceptance points. Special attention was devoted to preparing the dock front, the means of mechanization, and weighing management. Simultaneously a large contribution was made by the workers at the basin track and canal administrations: the work carried out involved the clearing, trawling, and deepening of the approaches to the docks at the elevators and grain-acceptance points in conformity with the requisitions submitted by the procurement organizations.

An analysis of the shipments of grain cargoes indicates that their volume during recent years not only has become stable, but there has even been a tendency toward

reduction. The opportunities for increasing the volume of grain shipments by switching it from the railroad to the water are being used insufficiently. An important condition for this is the coordinating of related types of transport at the reloading points. The practice of recent years indicates that, during the period of mass delivery of grain, the reloading ports, milling combines, elevators, and grain bases experience large difficulties with the obtaining of railroad freight cars, and this, in its turn, leads to idle time for ships that are awaiting unloading. Especially large periods of fleet idle time in excess of plan were observed during the past navigation season for this reason in the ports of Kalach, Georgiu-Dej, and Ufa. Therefore the administrators of the steamship agencies and the ports, jointly with the workers on the railroads and at the port stations, must guarantee the execution of uniform technological processes for the reloading of grain onto rail transport, and must establish strict monitoring of the precise implementation of the coordinated schedules for the providing of ships and freight cars.

One of the basic reserves for increasing the shipments of grain and other agricultural produce is the reduction in the time required for processing ships at the unloading points, and the organizing of a precise rhythm in moving it. It is precisely these reserves for increasing the fleet's handling capacity that are not yet being used completely.

The low level of being provided with technical equipment and of organizing the cargo operations at a number of docks at procurement organizations, and sometimes also the violation of smoothness in the providing of loaded ships to be unloaded, lead to large amounts of idle time in excess of plan.

The RSFSR Ministry of Procurements during recent years has built only a few new riverside docks, and remodeled only a few existing ones, for the loading and unloading of grain. The docks and the means of mechanization that have been installed there in most instances fail to meet present-day requirements. Many unloading points employ pneumatic units of an obsolete design, with a low productivity that does not exceed 30-50 tons per hour, or 600-700 tons per 24-hour day. Therefore the modern large-tonnage fleet that has been specially prepared for the hauling of grain expends for processing more than 60 percent of the total operating time. And so, even during the year 1981, which was not too intensive with regard to the delivery of agricultural output for shipment, the fleet's above-norm idle time during unloading at acceptance points of RSFSR Ministry of Procurements was as follows: in Kazan', 53,000 tonnage-days; Yaroslavl', more than 14,000; Rybinsk, 54,000 tonnage-days. The poor consignment structure of grain shipments, including those at seaports, the antiquity of the riverside docks and their low level of provision with reloading machinery are considerably restraining the use in grain shipments of modern diesel freighters with a cargo handling capacity of 5000 tons.

Considerable fleet idle time during the period of mass delivery of grain for shipment arises at unloading points. This occurs for two reasons: first, because the total productivity of the docks for unloading grain at the procurement organizations in the central and northwestern basins is only slightly more than half the loading productivity; secondly, the planning and delivery of grain for shipment by the RSFSR Ministry of Procurements and by the oblast grain products administrations are sometimes carried out without a consideration of the handling

capacity of the unloading points. This is especially apparent during the period of mass delivery of grain for shipment simultaneously from the river points and the seaports. The warehouse capacities of most of the riverside acceptance elevators, the milling combines, and the grain bases are completely filled up, the rail transport fails to guarantee the intensified removal of the grain, and the ships stand idle for a long period of time. Therefore RSFSR Ministry of Procurements, through the oblast grain products administrations and Soyuzkhlebekспорт, must regulate the issuance of requisitions for the assignment of ships for the loading of grain by points of destination, proceeding from the real unloading conditions.

Very prolonged periods of fleet idle time occur when shipping vegetables and melon crops. And these shipments are increasing annually. For example, at the docks at the procurement officers in Astrakhanskaya Oblast, including the sovkhozes, 75 percent of the ships provided for the loading of tomatoes and watermelons were processed in 1981 with idle time periods in excess of the planned norms. The overall above-plan fleet moorings for loading of fruits and vegetables came to 515,000 tonnage-days, which is equivalent to the idle time of 10 diesel freighters with a freight capacity of 600 tons each for the entire season of shipment of fruits and vegetables. In them one could ship an additional 11,300 tons of watermelons and tomatoes. The placement of the work load upon the fleet has been unsatisfactorily organized at the docks at the Yenotayevskiy, Ikryaninskiy, and Chernoyarskiy procurement officers, and also at the Vladimirskoye and Kilinchskoye sovkhozes, where from 60 to 95 percent of the ships were processed with an excess over the established loading norms. The above-plan fleet idle time is a consequence of the poor level of provision at the loading points with modern reloading machinery, by the lack of specialized docks, and by the poor organization of labor -- the loading of fruits and vegetables is carried out only during the daylight hours.

Of 45 organized points for the shipment of fruits and vegetables in Astrakhanskaya Oblast, 30 points have old wooden docks that are equipped with obsolete belt-type transporters with low productivity; at six points during the last navigation season, unloading was carried out manually. Practically speaking, at only two points (Olya and Biryucki), the produce was shipped by way of modern docks having vertical walls and dockside cranes. Two additional modern docks at Bakhtimir and Zavolzh'ye have vertical walls, but, unfortunately, they have been inoperative because of the lack of machinery. At the same time, cranes that were allocated for the purpose of rendering assistance by the Volga United Steamship Agency to the Travinskoye and Volodarovskoye sovkhozes have not been in operation for many years as a result of the lack of equipped docks.

Rospotrebsoyuz has unjustifiably prolonged the construction of mechanized docks at the procurement points at Krasnyy Yar, Stupino, Kopanovka, and Volodarovka. The completion of their construction is planned for the end of 1982 and 1983, instead of the planned 1980.

As a result of the intensive annual increase in the volume of shipments of watermelons and tomatoes from Astrakhanskaya Oblast to the central and northwestern parts of the country, and also as a result of the shortage of the small-tonnage fleet, with every passing year there has been an expansion of the sphere of use

of large-tonnage ships. For example, whereas ten years ago the large-tonnage fleet delivered 12 percent of the overall volume of vegetable and melon produce, in 1981 it shipped 45.9 percent. An analysis of the shipments of fruits and vegetables in ships with increased freight capacity, and especially on catamaran diesels and ships of the Okskiy type, attests to their high effectiveness. The advantage in this instance manifests itself, first of all, in the expansion of the front for the loading, and especially the unloading, of fruits and vegetables, and -- most importantly -- in the reduction of the amounts of time need to deliver the produce by 30-35 percent.

The Ministry of the River Fleet specially created a combined line for the shipping of melon crops from points in Astrakhanskaya Oblast to Moscow and equipped it with high-speed ships of the catamaran type. However, the shippers do not take a very benevolent attitude to the creation of this line, since in this instance they must change over to a new technological system for shipping, taking into consideration the shorter period of time for the additional ripening of the fruits and vegetables en route, and, consequently, the need for shorter periods of times for shipping them to points from which they will be taken.

Rospotrebsoyuz, RSFSR Minsel'khoz, and the newly created RSFSR Minplodovoshchkhov are using outmoded work methods, require -- as was the case 10-20 years ago -- that the rivermen provide only small-tonnage ships for the loading of their output, and organize small-consignment procurement of vegetables at unequipped riverside shipping points with a consideration of their additional ripening while en route to the customer.

With the involvement of the high-speed catamaran fleet for shipments of fruits and vegetables, there immediately arose the need for the reorganization of the entire transportation conveyor line -- from the field to the customer. In this instance it is necessary, first of all, to carry out the accelerated remodeling of the existing mechanized docks and the construction of new ones at the riverside shipment points; to organize there the 24-hour grading of the produce brought in from the fields and its loading onto the ships; the strict assignment of ships to the lines; and the carrying out of containerization. Then the benefit to the national economy will be great, since there will be a reduction by a factor of several times in the losses of produce en route and at the processing points. Moreover, the customer, upon receiving fresh and high-grade watermelons and tomatoes, will express his heartfelt thanks to all participants in the transportation conveyor line. One must not postpone the resolution of this question, inasmuch as, by the end of the five-year plan, the volumes of shipments of fruits and vegetables from the southern areas to the northern ones by river transport will, according to plan, be increased to 400,000 tons.

With the sharp shortage of small-tonnage ships during the period of mass delivery of fruits and vegetables for shipment, and with the allocation for this purpose of a large number of ships in the large-tonnage fleet, one cannot understand the shippers who have been devoted insufficient attention to the fulfillment of the shipment specifications. For example, during the 1981 navigation season, 73 percent of the ships supplied to points in Astrakhanskaya Oblast for the loading of fruits and vegetables were sent out with an underloading to the planned norms. The overall volume of underloading constituted 30,000 tons, which required the

one-time additional supplying, for purposes of loading fruits and vegetables during the season, of 100 ships with a freight-carrying capacity of 600-700 tons each. The average work load placed upon the fleet when shipping watermelons and tomatoes during the 1981 navigation season, as compared with 1980, dropped for all types of ships. For example, the work load placed upon the catamarans for carrying watermelons dropped by 11.2 percent; tomatoes, 12.9 percent; and the work load placed on diesels of the ST type dropped respectively by 14 and 2.4 percent.

On the part of the workers at the Astrakhan' river port and the Volga United Steamship Agency, one sees the manifestation of insufficient demandingness toward the shippers for the fulfillment of the shipment specifications. It is precisely in the correct assignment of the fleet to the various shipping points, the prompt processing of that fleet, and the efficient loading of the ships with fruits and vegetables in conformity with the technical norms that lies the basic activity of the department of vegetable and melon shipments which has been newly created at the Astrakhan' port.

The situation is no better with regard to the unloading of fruits and vegetables from ships at the arrival points. As a rule, the fruit and vegetable bases that accept the produce work only during the daylight hours, and the motor transport for removing the produce is assigned irregularly and in limited quantity. The level of organization of the unloading operations is low, and there is a lack of coordination between the actions of the rivermen and the shippers. All this gives rise to prolonged idle time for the transport fleet in excess of plan, while it is awaiting unloading, and frequently leads to the spoilage of the produce.

During the past navigation season, the fleet that was loaded with tomatoes and watermelons was processed in an especially unsatisfactory manner in the Leningrad, Moscow North, Moscow South, Kalinin, Kostroma, Ufa, and Kazan' ports.

During the 1981 navigation season, during the unloading of fruits and vegetables, the above-plan idle time for ships constituted 340,000 tonnage-days. That is equivalent to taking out of operation for the entire season of shipment of fruits and vegetables seven diesel ships with a cargo-carrying capacity of 600-700 tons each.

The reduction of the above-plan idle time that occurred during the past navigation season at loading and unloading points would have made it possible to transport 19,000 additional tons of tomatoes and watermelons.

The maximum reduction of the fleet's idle time in excess of norm at loading and unloading points is a substantial reserve for increasing the fleet's handling capacity. Therefore, the joint efforts of the procurement organizations, the rivermen, and the consignees must be directed at carrying it out.

Inasmuch as, proceeding from the concrete conditions at the shipment points, and primarily the opportunities for accumulating and grading the vegetables, it is desirable to use the small-tonnage fleet for the transporting of tomatoes, the watermelons must be shipped, as a rule, in large-tonnage ships. It is necessary

also within the shortest periods of time to carry out containerization, which will make it possible to increase considerably the fleet's carrying capacity, to reduce the amounts of time needed to deliver the melon crops from the field to the customer, to guarantee the excellent condition of the produce, to reduce the labor and material expenditures for loading and unloading operations, and to preclude entirely the need for guides.

At the present time, only watermelons are being shipped in containers. Shipments of tomatoes in containers, despite the numerous assurances from Rospotrebsoyuz, are not being carried out, in even an experimental manner, because of the lack of specialized containers.

During the 1981 navigation season more than 65 percent of the total number of watermelons shipped from Astrakhanskaya and Volgogradskaya Oblasts were shipped in containers. During the current navigation season it is planned to have the maximum increase in the volume of shipping of watermelons by this progressive method.

The basic causes of the retardation of the most intensive carrying out of containerization in shipments of fruits and vegetables are the insufficient number of specialized containers for watermelons and the complete lack of them for tomatoes, and, of course, the lack of mechanized docks at the loading points.

The improvement of the organization of shipments of agricultural produce largely depends upon the work performed by the rivermen. The administrators of the steamship companies and the ports must attentively and daily monitor the removal of the agricultural produce; must render the necessary assistance to the shippers and the consignees in developing and introducing the optimal technological schemes for loading and unloading operations; must promptly consider the possibility for assigning floating equipment for loading operations, to be used at unequipped docks; must assure the maximum satisfying of the 10-day and daily requisitions of the shippers for the fleet for purposes of shipping ready produce; and must assign specialized sectors that have been equipped with the necessary means of mechanization for their 24-hour operation.

A factor that constitutes a great hindrance in guaranteeing the removal of agricultural produce is the lack of coordination between the actions of the shippers and those of the transport people, and this manifest itself, first of all, in the low quality of the 10-day planning of the fleet work. Practically speaking, it has become a rule, that the 10-day requisitions issued by the procurement organizations do not correspond to the amount of freight that has been delivered for shipment. For example, during the last navigation season, for Astrakhanskaya Oblast alone, during the period of the fruit and vegetable campaign the total number of ships requested for the shipment of tomatoes in the 10-day requisitions was 821, and only 567 were confirmed by daily requisitions, but actually 571 ships were accepted for loading. The lack of conformity between the shippers' requisitions and the actual need for ships considerably hinders the work of the operational workers in the steamship agencies and ports in planning the work of the fleet and its use. This attests to the lack of daily reciprocal business contacts between the procurement organizations and the rivermen. Despite the joint conferences that are held annually in Astrakhan' for the ministries and departments participating in the procurement, transportation, and sale of fruit and vegetable produce, and despite the measures that

are developed at those conferences, the problem of the realistic planning of the fleet to be supplied remains unresolved.

An important role in organizing the shipments of cargo from the new harvest belongs to the operational workers in the ports and steamship agencies. Dispatcher control of the fleet's operations under these conditions must be subordinated to a single goal -- the guaranteeing of the rhythmical operation of all the links in the transportation conveyor belt, by means of increasing the quality of the 10-day and daily planning of the operation of the fleet and the ports on the basis of the strict fulfillment of the traffic schedule and the norms for processing the ships. The efforts of the dispatchers must be aimed daily at maintaining a constant communication with the ships that are engaged in shipments of agricultural cargoes, and the rendering to them of the necessary assistance, and at ascertaining the real volumes of the output to be delivered for shipment, the guaranteeing of the correct placement of the ships at loading docks, and the strict monitoring of their movement to points of destination. A special responsibility for coordinating the work of the transport fleet in shipments of grain and of fruit and vegetable produce in the system of related steamship agencies is borne by the dispatchers in the interbasin shipments service of the Moscow Steamship Agency.

At the peak of the harvesting operations, a factor of very great importance is the organizational spirit and the high discipline of all the workers in river transport. Therefore the dispatcher orders with the notation "harvest-82" must be executed by all services precisely and within the strictly established deadlines.

The excellent results in labor with regard to the prompt and efficient delivery of agricultural produce are being demonstrated by the advanced crews of ships in all steamship agencies. Their experience should be taken on as standard equipment by all ship crews that are executing these shipments.

The rivermen in the Russian Federation are obliged to take all steps to guarantee the shipments of agricultural cargoes and to deliver the new harvest quickly and without losses.

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OCEAN AND RIVER

CONTAINER SYSTEM MANAGEMENT DESCRIBED

Moscow MORSKOY FLOT in Russian No 6, Jun 82 pp 8-11

[Article by M. Mirzabeyli, chief of the Shipping Engineering Section of the Dal'flot GKHO: "Management of the Container System"]

[Text] During the 11th Five-Year Plan, the physical plant of the container transport engineering system (TTS) in maritime transport will undergo further development. The capacity to be created will make it possible to increase the containerized cargo shipping volume over the 5 years by more than 1.6 fold. However, in order to handle the planned increase in these shipments and raise the efficiency of the containerized TTS, it is essential to improve the methods of managing the container transport and loading processes.

The container shipping and loading processes should be controlled using computers, including the automated control system being developed in the sector for these processes, in cooperation with the analogous systems of the USSR Gosplan and Gossnab, of the other types of transportation, the cargo dispatchers and recipients in the nation as well as with the foreign regional systems.

The basic objects of control in the container TTS are the specialized port container installations and areas, the container carriers and the container fleet.

The handling capacity of the container installations is three-four fold greater than the universal piers. For this reason the handling capacity of the specialized container ships even with the same speed substantially exceeds the carrying capacity of universal vessels.

The container fleet, as an object of management, represents the most complicated part of the TTS, if one considers the enormous number of units (control should be established over the movement of each container).

All of this necessitates a fundamental new approach to managing the container loading and transporting processes as well as to organizing clear cooperation between the container systems of the maritime and other types of transport.

The start to this was made in the Far East which was and remains the most complicated maritime basin from the viewpoint of organizing and managing container shipments. The Far East is presently responsible for over 45 percent of these shipments

in the sector. Here the difficulties are that the same container vessels are operated both in coastal and overseas shipping. The container fleet is also used.

Primorskiy Kray has over 100 freight shippers who use the container fleet of the Far Eastern Navigation Company and here is concentrated a large number of cargo and container flows which pass through the transloading ports of Vladivostok, Nakhodka and Vostochnyy with the destination of Petropavlovsk-Kamchatskiy, Ust'-Kamchatsk, Magadan, the ports of Chukotka and the Arctic as well as overseas.

For ensuring the precise and uninterrupted operation of the container TTS as well as dependable cooperation with the adjacent types of transport and clients, a program has been outlined for working out and introducing the management of the container transporting and loading processes in the basin on the basis of a systems approach.

The implementation of the designated program started in 1975 with the elaboration and introduction of an automated control system [ASU] for the container installation at the port of Vostochnyy. Together with Soyuzmornniprojekt [State Design and Scientific Research Institute for Maritime Transport], an organization and technology were worked out for the passing of the containers through the container installation following the principal of stockpiling them in ship lots with a classification by a number of features ensuring the transloading of the containers to the sorting areas without additional moves. Such a procedure for the operation of the container installation was possible only with well-organized preliminary information (prior to the arrival of the containers at the installation), and on the basis of this instructions and orders could be promptly given for locating the containers at the sorting areas and for the arrival of the transport for processing.

The Dal'flot [Far Eastern Fleet] Association, the Far Eastern Navigation Company and the port of Vostochnyy, together with Soyuzveshtrans V/O [All-Union Foreign Transport Association] and the MPS [Ministry of Railroads] introduced an automated system for transmitting data on transit containers between the transit container tracking system (SSTK) and the ASU for the container installation at the port of Vostochnyy.

Information on the containers began to be received by the port office of Soyuzvneshtans V/O which on this basis issued an order to the container installation to unload the containers; this order was to arrive no later than 12 hours before the arrival of the container in port.

A provisional regulation was established for transmitting the necessary information between the participants in the transport process. The transmitting of information on incoming containers to the Far Eastern Railroad was carried out in the first stage from the railroad station Khabarovsk-2, and at present from Arkhara Station. However, the processing and prompt delivering to the port of necessary information and documents on incoming containers by the office of Soyuzvneshtans V/O required a large number of personnel, since this work was done manually.

The next stage was the creation of an automated control system for the operation of the port office of Soyuzvneshtans V/O on the basis of the container installation

computer. This made it possible to provide not only an information interaction between the office and the container installation on the computer level but also to give the computer the necessary documents, including the orders and bills of lading.

In 1979, the first stage of a collectively-used automated system was put into use for controlling the operation of the container installation (together with the office of Soyuzvneshttrans V/O) in the port of Vostochnyy.

In this system, the office of Soyuzvneshttrans V/O became responsible for keeping up the databank on the containers. The first information on the unloaded containers was received at the container installation from their unloading point while the last information came from Arkhara station. In accord with this information, the tracking and forecasting of the arrival of the containers in port were carried out as well as the necessary decisions on container traffic.

On the basis of subsequent information, the computer was used to plan the containers for the container carriers, proceeding from the current schedule of their arrival in port and considering the number of containers at port for which orders already existed for their unloading (this was also done by the office of Soyuzvneshttrans V/O).

After this the necessary information on the computer level was transmitted, to put it figuratively, to the "port" portion of the computer and here the personnel of the container installation would plan the operations involved in unloading the containers from the platform cars, placing them at the appropriate points of the sorting areas of the installation with the giving of the required schedule orders to the tallymen and operators of the transloading equipment.

Simultaneously with this work, within the elaborated principles for the operating of the container TTS, the Dal'flot Association together with the LVIMU [Leningrad Higher Naval Engineering School] and the Far Eastern Navigation Company worked out and introduced new principles for the placement of container vessels on the lines of the Trans-Siberian Container Service (TSKS). Under the conditions of a high density of vessel traffic (6.3 vessel arrivals per week at the port of Vostochnyy) and a large number of destination ports, this made it possible to ensure the arrival of the vessels at each of them strictly on the established days of the week, and for the port of Vostochnyy, a possibility of making up the containers by ship lots.

An analogous approach to the constructing of a container TTS was employed for coastal shipping. In the unloading of containers from the transloading ports (Vladivostok, Nakhodka) at the destination ports (Petropavlovsk-Kamchatskiy, Magadan), the required information was transmitted to the motor transport operations offices of the destination ports. On the basis of this these offices, along with the cargo recipients, ahead of time planned to remove the containers from the port on specific dates considering a set average daily rate for removing the containers for the given month.

The approved plan for removing the containers was forwarded to the port container installation not later than 24 hours prior to the arrival of the vessel. In accord with this plan, the personnel of the container installation worked out a plan for

the unloading of the vessel and the placement of the containers at the sorting areas. Considering that the number of clients exceeded 500 organizations, the interval between the arrival of the container vessels was 3-4 days while the daily batch numbered up to 250-350 containers, such an organization of the transport process was the sole one which could ensure the uninterrupted functioning of the transport system as a whole. At present due to the lack of a computer, this work is done manually and this naturally impedes its prompt execution.

It can be said that in the Far Eastern Basin fundamentally new organizational and technical bases have been created for the functioning of the container TTS and the interaction of it with the related types of transport and the clients. Prerequisites have also been established for working out an ASU for the container shipping and transloading processes in maritime transport using the computer equipment and the Container ASU.

In our sector during the Eighth Five-Year Plan the Container ASU did not receive the status of "citizenship." Instead of this, basic provisions were worked out and approved as well as an organizational and technological scheme for the functioning of an automated system to account for and track the movement of containers in maritime transport and operational control over the work of the container terminal (the automated monitoring system or ASK).

The elaboration and introduction of all the complexes of ASK problems should be completed in 1982. However even now we can see that the adopted measures are completely insufficient for controlling the operation of the container complex.

In the first place, the system in effect at the port of Vostochnyy for the interaction of the participants in the transport process has not been introduced in other ports. Consequently, the making up of containers in the ports must be done not by ship lots but rather by dispatching routes. Hence the containers will remain a long time in the ports without orders to wait for unloading and excess operations will continue in replacing the containers at the sorting areas of the facilities. The latter, in addition to reducing the intensity of the turnaround of means of transport (above all the container vessels), leads to a large loss of machine time to change the addresses on the containers being moved.

Secondly, the computers for which the appropriate programs have been worked out do not meet the requirements made upon computer equipment used to control the operation of the container installations. It must also be pointed out that the problems of controlling the container installation have not been worked out within the collective use system.

In realizing that the ASK can be only a foundation for creating the subsystem of the Container ASU and considering that this subsystem has not been incorporated in either the first or second state of the Maritime Fleet ASU, the Dal'flot Association together with the UEFiP [abbreviation unknown], Soyuzmorniiprojekt, the LVIMU and the Institute for Management Problems of the USSR Academy of Sciences prepared a plan for working out a system for controlling container shipments in maritime transport. In the first stage this envisaged the elaboration of a system for controlling container shipments in the maritime basin.

Unfortunately, work in this area was not centralized and was not carried out according to a unified plan but rather by individual assignments.

For ensuring the comprehensive elaboration of questions related to the management of the container TTS, in 1981, technical specifications were approved in the sector for working out the basic provisions involved in the organization and management of container shipments. These should reflect the principles of planning container shipments in maritime transport, the organization and structure of container shipment control. They should provide a notion as a whole of the system needed for the most efficient use of the fixed capital of the container fleet as well as determine the range of problems to be reviewed by within the sector and on an intersectorial level.

The managerial structure on all levels of the sector should play a very important role in creating the Container ASU.

In the ports where there are specialized container installations and large container areas, it is advisable to create container sections which would be responsible for solving all the operational and technical questions related to the containers located in the ports sphere and the questions of cooperation with the related types of transport and the clients within the transport junction. If one considers, for example, that such a port as Vladivostok even now handles more than 100,000 medium and large-tonnage containers a year, the necessity of such subdivisions is obvious.

In the large navigation companies it is essential to create administrations of container and packet shipments and these should include the corresponding specialized KhEGs [abbreviation unknown].

Several words about the demands which must be made on the specialists concerned with container shipments on any level of management. Experience indicates that correct decisions can be taken only with a comprehensive approach. For this reason the specialists in the area of container shipments should have equally good knowledge of all the matters related to the Container TTS as a whole and know the interaction and mutual influence of its individual elements.

The container transport system is a costly and complicated element of the transport process. Its effective management is possible only with well-coordinated, efficient work by all the personnel.

The creation of an automated system for controlling the container transport and transloading processes in maritime transport using the computer facilities of the Container ASU will make it possible to successfully carry out the tasks posed by the 26th CPSU Congress in the area of the accelerated development of container shipments and in improving transport management.

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OCEAN AND RIVER

EVALUATING PORT OPERATIONS

Moscow EKONOMICHESKAYA GAZETA in Russian No 31, Jul 82 p 15

[Article by I. Shevchenko, deputy director of Economic Affairs for the Novorossiysk Seaport: "Transport Tonnage"]

[Text] EKONOMICHESKAYA GAZETA has frequently written about the necessity of perfecting planning indices for transport. This is a particularly topical question for us, workers in sea transport. Let's take, for example, such an index as the volume of loading/unloading work in physical tons.

Ports handle various cargoes, and the amount of labor for each varies considerably. For example, the amount of labor needed to handle one ton of citrus fruit is 19 times greater than that needed for, let's say, grain. In other words, for a 100 ton load of citrus fruit, 19 dock workers and equipment operators are needed, while only one is needed for a whole series of other cargoes. It is only natural that if the volume of loading/unloading work assigned to a port is expressed in tons, then the port will look for the easier way to fulfill its quota.

Thus it frequently happens that a vessel with an "easy" load will be worked much more intensely at the expense of those whose cargo demands more labor. As far as the national economy is concerned, it is of the utmost importance to handle vessels that have labor intensive cargoes.

The index for the volume of cargo loaded/unloaded is now tied in with such an important index as productivity per laborer engaged in such work. Given this situation, the following may occur: for all cargo productivity may decrease, but the total index increases (if the weight of the amount of cargo handled increases, given a relatively high productivity and low amount of labor needed). We must bear in mind that output in tons per laborer engaged in the loading/unloading of cargo is the basic economic index. Use of such an unobjective index for the allocation of funds to provide economic incentive in ports cannot be considered correct.

An analogous situation occurs in the calculation of other important indices of work at the port: levels for the mechanized-unit handling of cargoes, the cost of handling one physical ton of cargo and others.

All of these deficiencies in planning indices for port area work have been discussed at various conferences. Both cost and adjusted indices have been proposed, as well as an indexed method for the calculation of labor productivity. But the discussions become longer and, frankly speaking, the experiments more half-hearted (and how long they last); nothing is proven. To judge which of the new indices can evaluate port productivity--this is most difficult. What is needed is a practical analysis of the next index. Perhaps in two or three ports one can carry out an analysis of new indices, analyze the results of the work, inform and then put into use the most acceptable ones.

I would like to recommend the use of an index in ports which, I believe, can more objectively evaluate the work handled there.

Ships carry loads whose weights are measured in tons. This is truly accepted as the usual unit of measure for sea transport and for clientele. But how to arrange matters so that a port is equally interested in handling any type of cargo?

From our point of view, the desired result can be attained by determining the volume in tons of loading/unloading work, this with regard to the amount of labor used to handle the cargo. It is necessary to calculate the volume of cargo handling work not in physical tons, but rather in adjusted tons.

For example, handling 10 tons of one particular cargo will require ten man-hours, 10 tons of another cargo 15 man-hours, and 10 tons of a third one man-hour. If we divide the amount of labor needed to handle one ton by the amount of each particular cargo, then we receive a corresponding adjusted coefficient for the handling of one physical ton of cargo, this with regard to the amount of labor. Multiplying the weight of each cargo in physical tons by the operational coefficient, the sum attained represents the adjusted tons for handling this cargo.

What have we gained by translating physical tons into adjusted ones?

First of all, there is now a way whereby a port has a self interest in handling all three of the above cargoes. In performing loading/unloading work and using adjusted tons, a port will not stress handling the third type of cargo at the expense of the first and second, for in its plan (considering the amount of labor needed) 10 physical tons of the third type of cargo will be counted as one adjusted ton.

Secondly, the volume of loading/unloading work measured in adjusted tons is more closely tied up with the necessary resources needed to complete it.

And third, by using adjusted tons, one can more objectively calculate labor productivity, cost of handling the cargo and the total labor bill.

The coefficient used in translating physical tons can be ascertained for each type of cargo by considering the equipment needed to handle it in port. The basis for determining these adjusted coefficients are the designations of cargo to be found in such handbooks as "Standard Complex Production Norms" and "Basin Complex Production Norms." We have such handbooks.

And one more thing to be considered. The higher planning organizations, using the planning coefficient for translating physical tons into adjusted ones, can affect the operations of the port by introducing the latest technology for cargo handling. Various combinations of machinery and various amounts of labor can be used to handle the same cargo. This shortcoming is lessened when planning is introduced using this translation coefficient of physical tons into adjusted ones. If the port does not use the latest technology in its operations, then real labor expenses, greater than those that are planned for, will occur, and the coefficient for the amount of labor used will increase in comparison to the planned one. This is proof of a wasteful use of labor resources.

Under these conditions one can foresee the use of measures of encouragement or fines, depending on how cargoes are handled with regard to planned labor outlays.

The introduction of adjusted tonnage into the evaluative indicators of port work will increase somewhat the computational work; objections can be expected. But let's take a look and see just how much more complicated the work of economists will be. Determining labor productivity by means of adjusted tonnage will take an hour of work on a calculator.

However, a small increase in the amount of calculations will be repaid a hundredfold. Let's not forget that, to ensure plan fulfillment for the volume of cargo loaded/unloaded, it often happens that tens of thousands of tons of sand or gravel are transferred, at times with no one to dump them off to. It costs kopecks to handle sand and gravel, and in the offices of Gosbank rubles of salary are spent on these tons to determine the average salary share for handling them.

It is true that not everything mentioned in this article is incontrovertible. There may be other ways to solve the problem. One thing is clear: the economic mechanism in transport must take account of the demands of time, and they do not wait. Bold experiments are necessary.

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OCEAN AND RIVER

REPORT ON FOREIGN SALES OF SHIPS, EQUIPMENT

Moscow SOVIET EXPORT in English No 3, 1982 p 16

[Text] V/O SUDOIMPORT: Dynamic Progress in Cooperation With Partners

This was borne out at a traditional press-conference devoted to the results of V/O SUDOIMPORT's work in 1981. O. S. Kropotov, general director, told the newsmen that SUDOIMPORT had 800 business partners in 80 countries.

Socialist countries account for more than two-thirds of SUDOIMPORT's foreign trade. V/O SUDOIMPORT is a party to four multilateral and four bilateral agreements on specialisation and co-production with the CEMA member-states and Yugoslavia for 1981-1985.

The association is doing steady business with firms in industrially developed capitalist countries--Finland, France, the FRG, Japan, Austria, Sweden and Norway.

More and more Soviet-built ships and shipboard equipment are being sold. In fact, the export share now constitutes 11-12%. Export structure has also changed. Starting out with shipboard equipment and small ships, V/O SUDOIMPORT has by now delivered large-tonnage vessels with a total deadweight of about 2.5 million tons.

In 1981, V/O SUDOIMPORT supplied to its customers nine large-tonnage vessels with a total deadweight of 171,000 tons, including a 38,000tdw ore carrier, 27,000tdw tankers, a 7,000tdw timber carrier, 14,000tdw dry cargo motorships, fishing trawlers, seaport tugboats of 1,200 hp, passenger river boats, the Kometa, Meteor, Nevka and Volga hydrofoils, as well as more than 100 launches and utility vessels.

Shipboard equipment--diesels of up to 22,000 hp, diesel-generators, compressors, deck machinery, electrical and radio navigational aids, pumps, galley equipment, lighting fixtures--in a word, everything necessary for a ship--constitutes a sizeable proportion of the association's export.

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OCEAN AND RIVER

NEW SERIES OF LARGE-CAPACITY SHIPS LAUNCHED

Kiev PRAVDA UKRAINY in Russian 3 Jul 82 p 1

[Article by A. Maliyenko: "First Sailing"]

[Text] The shipwrights of the Kiev Shipbuilding and Ship Repair Yard have turned over the motor ship "Slavutich-1" for operation--the first in a new series of large-capacity vessels. The gray Dnepr River has not yet borne such a giant on its shoulders. The new ship will take on board twice as much cargo than the largest river vessels of the basin and will also exceed the capabilities of mixed navigation vessels of the "river-sea" class. Operation of the "Slavutich-1" during a single navigation season will yield almost 500,000 rubles of saving, according to preliminary calculations.

The success of the Kiev shipwrights is truly shared by the collectives of many enterprises and organizations that participated in development of the motor ship. The ship's engines were received from the GDR, the radar instruments were made by Bulgarian specialists, orders to manufacture the planar sections were executed by Kherson shipbuilders, and tens of collectives from the union republics delivered parts and equipment.

The "Slavutich-1" is designed to haul mineral and construction materials, iron-ore pellets, coal, ore, containers and other general cargo. The collective of the planning and design office, Ukrainian SSR Glavrechflot [Main Administration of the River Fleet] worked out its design. The new ship has all the design advantages of so-called platform motor ships, production of which the Kiev yard was the country's first to begin 30 years ago. These ships receive cargo directly onto the open deck, which is much more convenient and faster than filling the holds.

The "Slavutich-1" also has great advantages over its predecessors.

"The motor ship is equipped with an essentially new draft monitoring system," relates the chief engineer of the PBK [Planning and Design Office] V. Vasil'yev. "Despite the impressive dimensions (the length of the motor ship is 110 meters, width is 16 meters and it can take 3,620 tons of cargo onboard), the "Slavutich-1" is very easy to operate. The height of the above-water section when passing under low bridges does not require lifting of the girders, the draft permits a completely submerged ship to ply from the lower reaches of the Dnepr River

to Kiev, and with slight underloading it can go even higher along the river--to Chernobyl'. It is planned in the future to increase the carrying capacity of ships of the new series by constructing barge accessories for them which are transported by the push method. These barges will be able to haul approximately 7,500 tons of cargo. The design of the accessory has been worked out and it is now up to the shipbuilders.

The designers were also concerned about improving the working and relaxation conditions for the crew and creating increased comfort for it. Each crew member has his own cabin. It is comfortable in the service compartments and in the mess. Special insulation protects the compartments from noise and vibration.

Solemn ceremonies were held at the plant on 30 June at noon for the motor ship, which has essentially become the flagship of the cargo fleet of the Dnepr.

6521

CSO: 1821/294

OCEAN AND RIVER

NEW CEMENT HANDLING TECHNIQUE INTRODUCED

Moscow VODNYI TRANSPORT in Russian 24 Jul 82 p 1

[Article by Yu. Churilov: "Advantageous Packing"]

[Text] A new technique of transshipping cement in bags has been introduced at the Tallinn Commercial Maritime Port.

It was always difficult to handle ships with this cargo. Bags weighing 50 kilograms, before being placed into the hold, had to pass through the hands of stevedores twice--on the dock when the pallet was loaded and in the hold where it had to be unloaded. For example, one worker transferred an average of 25 tons manually per shift at Tallinn Port.

"Recently," relates the chief technician of the port V. Kochmarev, "the stevedores have been relieved of heavy manual labor. The cement is now transloaded in polyethylene packages."

"The line ship 'Nikolay Shverniki' is now at the dock. The brigade headed by S. Gundich is entrusted with beginning loading of it by the new method. Let's see how this is done."

A special grab designed by technicians of Tallinn Port replaces the hands of the stevedores. It is brought under the package (there was no need for a pallet) and the cargo is raised and placed into the hold. A minimum of 10-12 stevedores was previously required for this operation. I now count only 5.

To introduce the new method of loading, the efforts not only of the port workers but also specialists of the Cement Plant Punane Kunda were also required. A new shop was constructed at this enterprise. It permitted paper bags containing cement to be delivered on a transporter belt to a specially designed machine, which places them in a strictly specific manner. Thus a package of 49 bags is formed. It is then "clothed" in polyethylene film. It is heat treated in this form. As a result the polyethylene fuses and special rollers press it tightly against the bags. A reliable package is formed. It is very important not only for the stevedores.

"Cement and moisture, as is known, are incompatible," the captain of the motor ship "Nikolay Shverniki" A. Khudzhavili enters the conversation. "And it was

necessary to look at the sky frequently at Tallinn whether there would be rain or not. The new packaging eliminates losses of time due to bad weather and this means the anchorage in port is reduced."

The "Nikolay Shvern timer" was loaded clearly and smoothly at fast rates. A new motor ship "Aleksandra Artyukhina" came up to the dock. The specialists had already calculated that the labor productivity of the stevedores had doubled with the new technique. The idle time of ships became considerably shorter because of this. Approximately 18,000 tons of cement were dispatched to customers since the day that polyethylene packaging began to be used.

6521

CSO: 1829/294

OCEAN AND RIVER

BRIEFS

NEW SEA FERRY PLANNED--The Bakinskiy branch of the Scientific Research Institute for State Maritime Projects has begun work on the building of still another sea "bridge." A ferry boat passage between Klaypeda and Zasnits (GDR) on the Baltic is being planned. The collective from the institute earlier took part in the building of ferry boats on the Caspian Sea, on the Tatar and Kerchinskiy Straits, and--the largest, the Il'yichevsk--at Varna on the Black Sea. This one on the Baltic will be the longest, more than 270 miles. Double deck ships without elevators shall be used. Specialists have calculated that 100 times fewer workers shall be needed in the transport of cargo along the "bridge" from Klaypeda to Zasnits than if transport by rail or ship were used. [By L. Tairov] [Text] [Moscow PRAVDA in Russian 28 Jun 82 p 2] 9964

CSO: 1829/285

MISCELLANEOUS

REVIEW OF BOOK ON INTERNATIONAL TRANSPORTATION LAW

Moscow FOREIGN TRADE in English No 7, Jul 82 pp 52-53

[Review by Alexander Dmitreyev of book written by O. N. Sadikov, "Law Regulation of International Transportation," Moscow Yuridicheskaya literatura Publishing House, 1981, 285 pages]

[Text] The Yuridicheskaya Literatura Publishing House (Juridical Literature) issued a monograph by O.N. Sadikov.* In this work a reader will find answers to various questions which may arise when studying and applying numerous standard norms which at present regulate international cargo and passenger transportation by road, rail, air and sea as well as cargo shipments by combined transport. Chapters of the book dealing with general questions concerned with freight shippers' responsibility and contents of relationship as to the international rail, road, sea and combined transportation are of special interest for people engaged in foreign trade.

The author has deeply studied works by Soviet and foreign scientists, experts in the international public, international private and civil law as well as judicial and arbitration practice. This made it possible for him to reveal relevant questions and introduce well-grounded proposals for improving certain normative acts regulating international transportation.

The first part of the book characterizes the present organization of trans-

port communications between countries, systematizes existing international transport agreements, enlightens the role of international law and the mechanism of its utilization for regulating international transportation, special and general collision norms in this area, the importance and legal peculiarities of international transportation agreements, discusses questions concerning freight shippers' responsibility as well as relations between insurance companies and institutions bearing responsibility.

The second part of the book largely contains an analysis of transportation terms and the parties' responsibility when transporting cargo and passengers by specific kinds of transport and also when shipping cargo by combined transport.

One should agree with the author's opinion that "for recognizing transportation to be international as such it is not obligatory for it to be performed on the territory of two or more countries; it is sufficient for the transportation to be started; the cargo does not have to actually arrive on the territory of another state (cross its border)..." and disagree with some authors' opinion asserting that international transportation has to be conducted on the territory of two or more countries or that it must be connected

* O.N. Sadikov, *Law regulation of international transportation*. Moscow, Yuridicheskaya literatura Publishing House, 1981, 285 pp. (in Russian).

with the fact of crossing a border (p. 7).

From an analysis of the existing international agreements regulating transportations the author singled out seven main ways of accomplishing international communication: direct, non-direct, transshipping and non-transshipping, neighbourly, transit and through.

The author points out that at present a great number of agreements on international transport exist and special agreements for certain kinds of transport have been elaborated or are being so. He has arrived at just conclusions that "the system of transportation agreements is now very extensive and complicated" and is very poorly studied in Soviet literature (pp. 14, 18).

Due to the fact that transport is an independent branch of industry and transport agreements have legal peculiarities the author with good reason proposes singling out these agreements as a separate group of international economic agreements and systematize them on the subject basis of law regulation the following way: agreements on general principles of activity of certain types of transport; agreements on the organization of international communication between countries; agreements on terms of cargo and passenger transportation; agreements on transportation tariffs; agreements aimed at improving transport communication between countries; agreements regulating specific aspects of activity of certain types of transport; agreements of a law protecting character envisaging protection of property interests in the sphere of international transport (p. 30).

The author pays special attention to agreements reached on the terms of cargo and passenger transportation since they specify the contents of the international transportation agreement "within the framework of which the aim of transport operations-transportation of cargoes and passengers to the place of destination" (p. 35).

At present agreements of transport organizations dealing with international transportation are being more widely

used. The author tries to elicit the legal nature of these agreements pointing out that neither Soviet nor foreign literature gives a single opinion on such aspects as the relationship of these agreements with the acting international transport agreements, their juridical force and the order of settling arguments arising when applying agreements of the above organizations. On the basis of the analysis the author comes to a conclusion that certain agreements should be regarded as peculiar international agreements (for example, the Bratislava agreements of the Danube shipping companies, the Montreal agreement signed by air companies, May 4, 1966) while others should be referred to the category of civil-law contracts (for example, shipping companies' agreements on organizing line conferences and the agreement of Sovtransavto of the RSFSR Ministry of Motor Transport with foreign transport and agency organizations on the terms of international road cargo transportation).

With his researches into questions on the source of law regulation of international transportation such as national law the author draws attention to the mutual influence of international conventions and norms of national transport law, gives a classification of the acts of the national law applicable to international communication and also the general characteristics of collision norms in the sphere of international transportation dwelling particularly on special collision norms.

The book elucidates in detail the importance and legal peculiarities of the international transportation agreement, the scope, terms and the limits of the freight shipper's responsibility. The author's statements that this agreement serves as a foundation for undertaking transportation commitments and the property responsibility of the sides and that it specifies transportation conditions as stipulated in international agreements are indisputable. When speaking about the scope of the freight shipper's responsibility the author specially underlines the neces-

sity of establishing the time limits of responsibility and the range of cases when it is possible.

The analysis of international agreements shows that as a rule, they determine the freight shipper's responsibility not in a general form but envisage a list of cases when responsibility should be undertaken. Since in judicial practice the lack of indication of responsibility in similar lists when some other violations of an agreement occur are interpreted as an intention to evade responsibility, the author with good reason proposes that the freight shipper's responsibility in international agreements when improving the law regulation should in all instances be specified. The book specially dwells on the problem of relationship between freight shipper's responsibility and that of an insurance organization.

The questions of railway and sea transportations are discussed in detail; attention is paid to international air and road transportations (Chapters V-VIII).

The author consecutively describes each of the above types of international transportation, elucidates questions concerned with the organization of transportations by specific transport and their peculiarities, enumerates the acting international agreements regulating relevant shipments, explains transportation conditions and the freight shipper's responsibility as well as the order and time limits for presenting claims and actions against him.

Peculiarities of law regulation of shipments by this or that type of transport conditioned by certain motives are discussed separately. Thus, questions concerned with the capitalist and socialist countries' railway communication are elucidated and in addition international transportations in AICC-ICC¹ communication and the USSR

bilateral agreements with the capitalist countries on railway communication. Separate paragraphs in the chapter about international sea transportations deal with questions of law regulation concerning charter shipments and bills of lading, line cargo and passenger transportation. The chapter on international air shipment, apart from the materials of the Warsaw convention and relevant protocols, discusses the conditions of the air companies, international transportations including those specified in the Regulation and Rules of Aeroflot's international transportations as well as questions of leasing and chartering air transport.

Combined cargo transportation is constantly expanding at present. Therefore it is quite understandable why the author paid much attention to the regulation of international combined cargo transportation, i.e. transportation of the same cargo between two or more countries carried out by several types of transport. These shipments are described in the last chapter. This chapter considers transportations with the forwarder's participation by direct bills of lading and the document of combined transportation, transit through the USSR territory; describes the socialist countries' agreements on combined transportation, and the 1980 convention regulating international combined cargo transportation.

Doing justice to all the positive features of the book several aspects of it need comment.

In chapter V "International Railway Communications" the agreement of the AICC member-countries (Bulgaria, Hungary, the GDR, Mongolia, Poland, Romania, the USSR and Czechoslovakia) on the international transit tariff and the order of official registration of shipments from the AICC countries to the ICC (ITT)² countries was mentioned. However, the reader remains unaware as to what agreement regu-

¹ AICC—agreements of the socialist countries on the international railway cargo communication.

ICC—the Bern international convention on railway cargo transportation.

² ITT—International Transit Tariff.

lated these questions concerning the above countries' relations with other AICC member-countries: the Korean People's Democratic Republic, the People's Republic of China and the Socialist Republic of Vietnam. The point is that simultaneously with the AICC agreement the Common Transit Tariff Agreement has been applied since November 8, 1951. The International Transit Tariff has been operative since October 1, 1977. As for relations of the ITT member-countries with the Korean People's Democratic Republic, the People's Republic of China and the Socialist Republic of Vietnam the Common Transit Tariff is still applicable to them.

The book does not discuss the inland water traffic. The author explains away this by a negligible volume of this traffic and also by the fact that the law regulation of them is at the initial stage. However, over recent years transportations of foreign trade cargoes by Soviet ships of miscellaneous "sea-river" type are being more widely used. The specific feature of these transportations has been expressed in their law regulation. In our opinion, the author should have discussed, at least briefly, this specific feature in chapter VIII "International Sea Transportations."

The questions concerned with the order and time limits of taking actions and laying claims are considered in chapters constituting a special section of the book. We think this is not the best way. We suggest that when O.N. Sadikov publishes a new edition of the monograph he should put all the material dealing with the above subject in one chapter of the book's general section.

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CSO: 1812/149

MISCELLANEOUS

SPENT NUCLEAR FUEL DEPARTS FINNISH PLANT BY RAIL FOR USSR

To Train Station By Truck

Helsinki HELSINGIN SANOMAT in Finnish 15 Aug 82 p 6

[Article: "Nuclear Waste Transferred to Train, Shipment to USSR Begins on Sunday"]

[Text] Loviisa--On Saturday afternoon at 2 o'clock Imatra Power began the transfer of spent nuclear fuel along the highway from the island of Hastholmen to the train station in the center of Loviisa.

The nuclear fuel will be transferred by rail to the Soviet Union. The shipment by rail will begin on Sunday as long as everything runs according to the plans.

The spent fuel from Loviisa's number 1 reactor is emitting exceptionally forceful rays. It will remain dangerous to the environment for thousands of years.

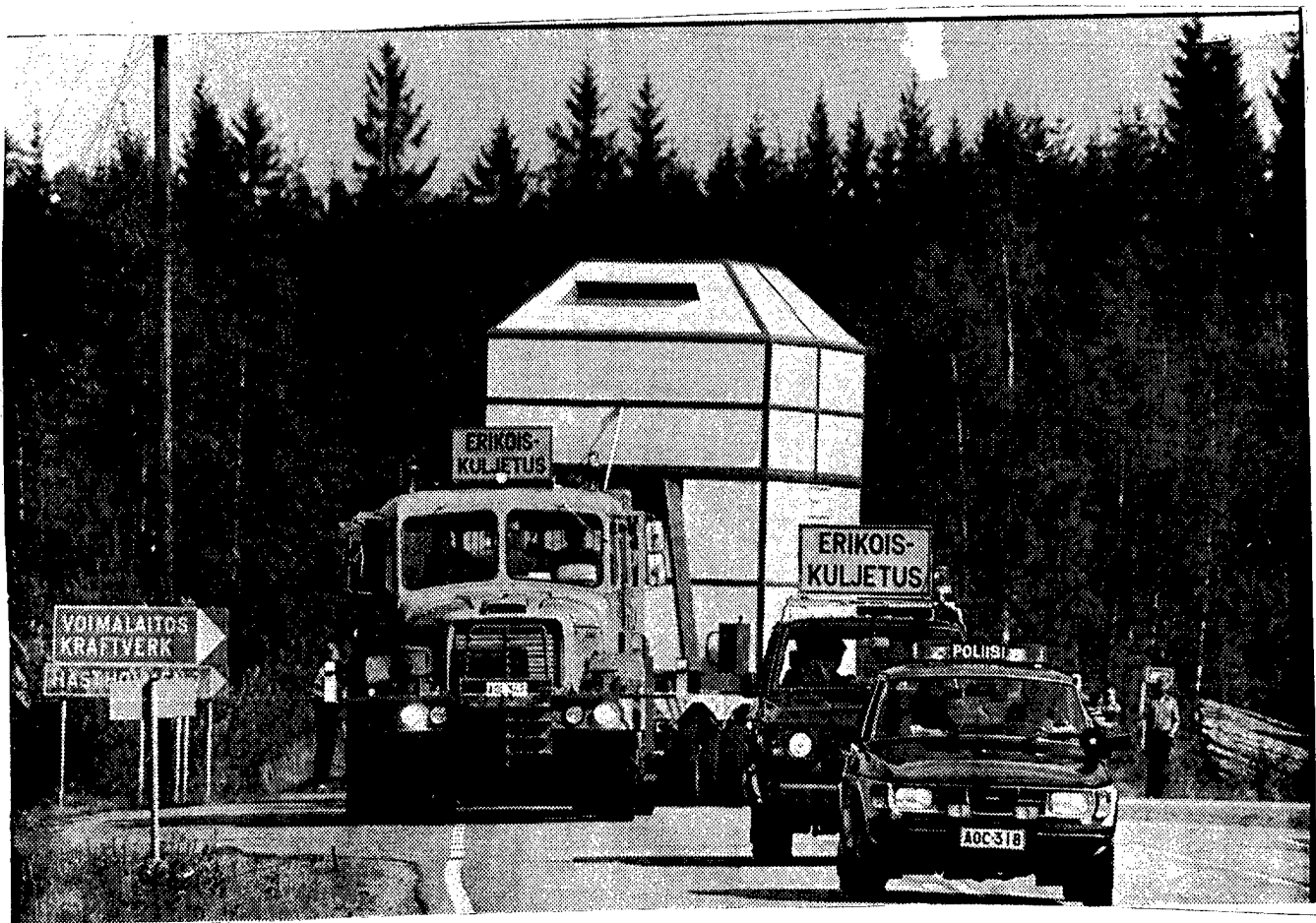
The 14-ton consignment to be shipped now was in the reactor 2 years. Its radiation effect is thus stronger than the first fuel consignment shipped last year, which was in the reactor only 1 year.

The consignment being shipped also contains a total of approximately 70 kilos of plutonium. This load is among the most dangerous cargoes to be shipped along Finland's highways.

Exceptionnaly precise security measures will be implemented in the transfer of this fuel packed in four transport containers. For example, emergency rescue plans have been made along the route of the shipment.

The transport containers were moved from Hastholmen to the train station one at a time. The containers were pulled by an English-made artillery truck designed for desert conditions.

Transportation along the highway and transfers at the nuclear power plant as well as at the train station were carried out intrepidly on the basis of past experience. At Imatra Power it was calculated on Saturday that the shipment will be completed at a considerably faster rate than it was last year.



During transport the 90-ton containers were covered with a sheet metal shield.

The route was now the same as last year.

Container Will Withstand a Fall

Spent nuclear fuel is the "hottest item" in a nuclear power plant. During shipment the contents of the 90-ton transport container is near the boiling point or a little less than 100° and equal to a pressure of 2 bars.

The containers were made especially strong so that the contents would not spill into the environment in the event of an accident. The container must be able to withstand a fall from a height of 9 meters according to a stipulation of the international atomic energy organization, IAEA. It must also be able to remain water-tight under water after it has first been scorched under 900-degree heat.



Cooling system of the Finnish locomotives pulling the special Soviet train was subjected to a workout at the beginning of the trip. The train could travel at only 10 kilometers per hour along the weak section of the track between Loviisa and Lahti.

Shipment Through Southern Finland

The next phase of the shipment will take place by rail. Its weakest link will be the old track between Loviisa and Lahti. This segment of the track, which is in exceptionally poor condition, was inspected again this year and was confirmed to withstand a heavy load. However, the special Soviet train will traverse this segment of the track at an exceptionally slow speed, almost at a walking pace.

The design and construction of the train will also increase its stability. The axles of the cars are situated at the ends of the cars in the manner of the high-speed French TGV train. Each car has 12 axles.

The most critical points noted on the map of the security people are the cities of Lahti and Kouvola where the train will travel through heavily populated areas.

Return Shipment Based on Agreement

The spent fuel from the nuclear power plant will be returned to the USSR on the basis of an agreement concluded between Imatra Power and Atomenergoeksport

[State Committee for the Exporting of Atomic Energy], the Soviet organization that delivered the plant.

Originally it was agreed that the fuel would be cooled off in Finland for 3 years before it is returned. Now the time has been extended to 5 years. For this reason a similar shipment will not take place next year. The storage area for spent fuel has also been expanded at Hastholmen. The expanded storage area should be completed next year.

Train Leaves Loviisa

Helsinki HELSINGIN SANOMAT in Finnish 16 Aug 82 p 12

[Article: "Atomic Train's Crawl Begins"]

[Text] Loviisa--The second return shipment of spent nuclear fuel in the history of the Loviisa Nuclear Power Plant began on Sunday at 6:00 pm from the railroad station in Loviisa. The transport containers loaded with nuclear fuel were loaded on the train in the early morning hours.

The special Soviet train was pulled at a slow speed on the section of track between Loviisa and Lahti by two Finnish diesel locomotives. The train moved at only a speed of 10 kilometers per hour for the first few kilometers.

After passing the poor section of the track the train was able to increase its speed in the early morning hours. From Lahti to the east the train's speed will be approximately 50 kilometers per hour.

Just as last year 14 tons of spent nuclear fuel is now being returned to the USSR.

This year's shipment differed significantly from the first shipment from the point of view of press release arrangements. This time Imatra Power avoided unnecessary dramatics and the schedules of the shipment were announced to the press in good time.

Needless dramatics were also avoided with respect to security arrangements for the shipment. Armed guards were not visible and there was even a feeling of a casual summer outing as the train transporting this dangerous cargo departed the train station in Loviisa.

The curious came in sufficient numbers to watch at the crossroads and viewpoints along the track between Loviisa and Lahti. The more enthusiastic awaited without fear of radiation the arrival of the shipment, which had acquired considerable notoriety.

A similar shipment will not take place next year since spent fuel will be cooled off in the future for a longer period of time at the Loviisa Nuclear Power Plant. The original agreement provided for a cooling off period of 3 years. However, the agreement concluded between Imatra Power and Atomenergoeksport was revised and this period was extended to 5 years.

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